

CA20N  
EAB  
- H26

3 1761 11652159 2

# ENVIRONMENTAL ASSESSMENT BOARD

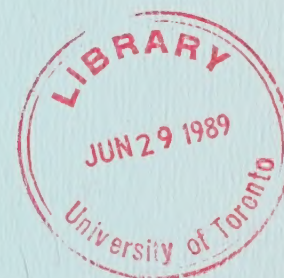
VOLUME: 116

DATE: Tuesday, June 20th, 1989

BEFORE: M.I. JEFFERY, Q.C., Chairman

E. MARTEL, Member

A. KOVEN, Member



FOR HEARING UPDATES CALL (TOLL-FREE): 1-800-387-8810

**FARR &**  
ASSOCIATES  
REPORTING INC.

(416) 482-3277

2300 Yonge St., Suite 709, Toronto, Canada M4P 1E4





HEARING ON THE PROPOSAL BY THE MINISTRY OF NATURAL  
RESOURCES FOR A CLASS ENVIRONMENTAL ASSESSMENT FOR  
TIMBER MANAGEMENT ON CROWN LANDS IN ONTARIO

IN THE MATTER of the Environmental  
Assessment Act, R.S.O. 1980, c.140;

- and -

IN THE MATTER of the Class Environmental  
Assessment for Timber Management on Crown  
Lands in Ontario;

- and -

IN THE MATTER of an Order-in-Council  
(O.C. 2449/87) authorizing the  
Environmental Assessment Board to  
administer a funding program, in  
connection with the environmental  
assessment hearing with respect to the  
Timber Management Class  
Environmental Assessment, and to  
distribute funds to qualified  
participants.

-----

Hearing held at the Ramada Prince Arthur  
Hotel, 17 North Cumberland St., Thunder  
Bay, Ontario, on Tuesday, June 20th,  
1989, commencing at 9:00 a.m.

-----

VOLUME 116

BEFORE:

MR. MICHAEL I. JEFFERY, Q.C.	Chairman
MR. ELIE MARTEL	Member
MRS. ANNE KOVEN	Member





Digitized by the Internet Archive  
in 2023 with funding from  
University of Toronto

<https://archive.org/details/31761116521592>



A P P E A R A N C E S

MR. V. FREIDIN, Q.C.)	MINISTRY OF NATURAL
MS. C. BLASTORAH )	RESOURCES
MS. K. MURPHY )	
MS. Y. HERSCHER )	
MR. B. CAMPBELL )	MINISTRY OF ENVIRONMENT
MS. J. SEABORN )	
MR. R. TUER, Q.C.)	ONTARIO FOREST INDUSTRY
MR. R. COSMAN )	ASSOCIATION and ONTARIO
MS. E. CRONK )	LUMBER MANUFACTURERS'
MR. P.R. CASSIDY )	ASSOCIATION
MR. J. WILLIAMS, Q.C.	ONTARIO FEDERATION OF
MR. B.R. ARMSTRONG	ANGLERS & HUNTERS
MR. G.L. FIRMAN	
MR. D. HUNTER	NISHNAWBE-ASKI NATION and WINDIGO TRIBAL COUNCIL
MR. J.F. CASTRILLI)	
MS. M. SWENARCHUK )	FORESTS FOR TOMORROW
MR. R. LINDGREN )	
MR. P. SANFORD )	KIMBERLY-CLARK OF CANADA
MS. L. NICHOLLS)	LIMITED and SPRUCE FALLS
MR. D. WOOD )	POWER & PAPER COMPANY
MR. D. MacDONALD	ONTARIO FEDERATION OF LABOUR
MR. R. COTTON	BOISE CASCADE OF CANADA LTD.
MR. Y. GERVAIS)	ONTARIO TRAPPERS
MR. R. BARNES )	ASSOCIATION
MR. R. EDWARDS )	NORTHERN ONTARIO TOURIST
MR. B. McKERCHER)	OUTFITTERS ASSOCIATION
MR. L. GREENSPOON)	NORTHWATCH
MS. B. LLOYD )	





APPEARANCES: (Cont'd)

MR. J.W. ERICKSON, Q.C.)	RED LAKE-EAR FALLS JOINT
MR. B. BABCOCK )	MUNICIPAL COMMITTEE
MR. D. SCOTT )	NORTHWESTERN ONTARIO
MR. J.S. TAYLOR)	ASSOCIATED CHAMBERS OF COMMERCE
MR. J.W. HARBELL)	GREAT LAKES FOREST
MR. S.M. MAKUCH )	
MR. J. EBBS	ONTARIO PROFESSIONAL FORESTERS ASSOCIATION
MR. D. KING	VENTURE TOURISM ASSOCIATION OF ONTARIO
MR. D. COLBORNE	GRAND COUNCIL TREATY #3
MR. R. REILLY	ONTARIO METIS & ABORIGINAL ASSOCIATION
MR. H. GRAHAM	CANADIAN INSTITUTE OF FORESTRY (CENTRAL ONTARIO SECTION)
MR. G.J. KINLIN	DEPARTMENT OF JUSTICE
MR. S.J. STEPINAC	MINISTRY OF NORTHERN DEVELOPMENT & MINES
MR. M. COATES	ONTARIO FORESTRY ASSOCIATION
MR. P. ODORIZZI	BEARDMORE-LAKE NIPIGON WATCHDOG SOCIETY
MR. R.L. AXFORD	CANADIAN ASSOCIATION OF SINGLE INDUSTRY TOWNS
MR. M.O. EDWARDS	FORT FRANCES CHAMBER OF COMMERCE
MR. P.D. McCUTCHEON	GEORGE NIXON





(iii)

APPEARANCES: (Cont'd)

MR. C. BRUNETTA

NORTHWESTERN ONTARIO  
TOURISM ASSOCIATION





I N D E X   O F   P R O C E E D I N G S

Witness:

Page No.

<u>J. JOSEPH CHURCHER,</u>	
<u>EDWARD ISKRA,</u>	
<u>ROBERT L. GALLOWAY,</u>	
<u>ROBERT A. CAMPBELL,</u>	
<u>MICHAEL EDWIN BUSS,</u>	
<u>PETER PHILLIP HYNARD,</u>	
<u>CINDY STERN KRISHKA,</u>	
<u>STEPHEN NICHOLSON, Resumed</u>	19385
Continued Cross-Examination by Mr. Castrilli	19385
Cross-Examination by Ms. Bair-Muirhead	19504
Cross-Examination by Ms. Seaborn	19572





I N D E X   O F   E X H I B I T S

<u>Exhibit No.</u>	<u>Description</u>	<u>Page No.</u>
676	Excerpts from Plonski's yield table, metric version.	19426
677	Excerpt from report entitled: 1989 Eleven-Year Summary of Silvicultural Statistics for Canada.	19465
678	MOE Interrogatory No. 7. (Panel 12)	19509
679	Ministry of the Environment Interrogatory Question Nos. 3, 5, 7, 8, 9, 10, 11, 13 and 14. (Panel 12)	19571
680	Ministry of the Environment Interrogatory Question Nos. 1, 2, 3, 4, 6, 7, 9, 10, 11, 12, 13 and 14.    (Panel 13)	19572
681	Four-page excerpt from the Red Lake Timber Management Plan.	19576





1 ---Upon commencing at 9:05 a.m.

2 THE CHAIRMAN: Good morning. Be seated,  
3 please.

4 Very well, Mr. Castrilli, are you ready?

5 MR. CASTRILLI: Yes, Mr. Chairman.

6 J. JOSEPH CHURCHER,  
7 EDWARD ISKRA,  
8 ROBERT L. GALLOWAY,  
9 ROBERT A. CAMPBELL,  
10 MICHAEL EDWIN BUSS,  
11 PETER PHILLIP HYNARD,  
12 CINDY STERN KRISHKA,  
13 STEPHEN NICHOLSON, Resumed

14 CONTINUED CROSS-EXAMINATION BY MR. CASTRILLI:

15 Q. Mr. Churcher, do you have Exhibit 632  
16 handy?

17 MR. CHURCHER: A. Yes, I do. Just hold  
18 on one second while I dig it out. Yes, I have it.

19 Q. When we ended the discussion  
20 yesterday, you had provided an answer to the question I  
21 had raised in connection with this exhibit.

22 The exhibit itself talks about the total  
23 amount of 76,526 hectares as being what was sprayed in  
24 1987 in northcentral region.

25 And the question I had left with you and  
that you answered at the end of the day was the amount  
of commercially operable forest that was destined to be  
harvested within 10 years of the start of the spray

1 protection program for that area. Do you recall that  
2 testimony?

3 A. Yes, I do.

4 Q. And I believe your answer was 52,800  
5 hectares were commercially operable forest?

6 A. That's correct.

7 Q. Now, I also understand from your  
8 answer to our interrogatory, still the same  
9 Interrogatory Question 21, that all of the commercially  
10 operable forests that were treated in 1987 will be  
11 harvested within 10 years of the start of the spray  
12 operation; is that right?

13 A. That is also correct.

14 Q. And you will recall, Mr. Churcher,  
15 that you also advised my clients in answer to our Item  
16 (b) in that question, the question was: How much of  
17 the area sprayed in 1987 has been harvested thus far?  
18 That your answer was: To date, 558 hectares. Is that  
19 correct?

20 A. Yes, that's correct.

21 Q. Can you confirm for me, Mr. Churcher,  
22 that at the rate of 558 hectares per year it will take  
23 94.6 years to harvest the remainder of the commercially  
24 operable forest you sprayed in 1987?

25 A. At that rate, yes, it would, but of

1 course we will not be harvesting at that rate on an  
2 annual basis.

3 A. It's important to realize, of course,  
4 that we would not be spraying -- in most cases we would  
5 not be spraying an area that was due to be harvested  
6 within a year anyway. We do not spray dead trees, we  
7 spray trees that are alive so that we can continue to  
8 keep them alive.

9 If the trees are on their last legs, so  
10 to speak, then those stands would be the ones that  
11 would be harvested soonest. However, a tree that is  
12 still alive or has just died is still harvestable for  
13 approximately two years after the point that it is  
14 dead.

15 So one would not anticipate a lot of  
16 harvest within the first year or two years after a  
17 spray program. The majority of the area that was  
18 sprayed, commercially operable forest if it's sprayed  
19 would have been harvested say three, four, five and up  
20 to 10 years after the spray.

21 Q. It's going to be a long hearing, Mr.  
22 Churcher. I'm wondering, certainly for 1989 you will  
23 be able to provide us with figures for how much was  
24 harvested; would you not, at the appropriate time?

25 A. I believe the approximations for what



1 was harvested in the year 89 -- 88-89 or 89-90 would  
2 probably be available about a year from now.

3 Q. I suspect we will be here. Could I  
4 have your undertaking to provide that information at  
5 that time?

6 THE CHAIRMAN: Hopefully it's an  
7 undertaking you can breach.

8 MR. CASTRILLI: Q. Your answer is yes?

9 MR. CHURCHER: A. Assuming there is no  
10 time limit on undertakings then, yes, I will make a  
11 note of that.

12 Q. The major precedent is the continued  
13 existence of the hearing.

14 MR. GALLOWAY: A. The date that would be  
15 available would be, they are turned in in November the  
16 year after because of the requirement of aerial  
17 photography of that. So November after next March 31st  
18 would be this summer's, that is when that information  
19 would be available.

20 Q. Whenever it's available, assuming the  
21 hearing continues. I have your undertaking to provide  
22 it; is that correct?

23 MR. CHURCHER: A. Yes, you do.

24 MR. FREIDIN: Remind us of that, if we  
25 forget.

1 MR. CHURCHER: Assuming, of course, that  
2 I am still with the Ministry of Natural Resources at  
3 that time.

4 THE CHAIRMAN: Presuming we are all still  
5 alive and kicking.

6 MR. CASTRILLI: Q. Mr. Churcher, apart  
7 from this evidence that is contained in Exhibit 632, in  
8 particular our Interrogatory Question 21, is there any  
9 other information that has been provided by this panel  
10 with respect to whether areas sprayed and, in  
11 particular commercially operable forests sprayed, have  
12 in fact been harvested within the 10-year requirements  
13 of the Ministry policy set out in Panel 13 evidence?

14 A. No. As I think I mentioned  
15 yesterday, the only time it has been mentioned was in  
16 discussing the procedure that indicates that that is  
17 one of the criteria for spraying a commercially  
18 operable forest.

19 But, as I recall, there has been no other  
20 evidence led that proves that we have or that those  
21 areas have been harvested within 10 years. To my  
22 knowledge, however, that is the case.

23 Q. I'm sorry I don't understand the last  
24 part of that question -- that answer,

25 A. To my knowledge, that the areas that

1 have been sprayed in previous programs, going back I  
2 guess to 19 -- the early 1980s, have indeed been  
3 harvested in the time frame that they were supposed to  
4 be.

5 Q. But we have none of that evidence  
6 before us; is that correct?

7 A. That is correct.

8 THE CHAIRMAN: Other than his opinion  
9 that he just gave you. There is no proof, there is no  
10 confirmation in terms of a study or a document, but  
11 he's giving you his indication as to his belief.

12 MR. CASTRILLI: That's fine.

13 Q. And just to wrap this part of the  
14 conversation up, Mr. Churcher, assuming for whatever  
15 reasons a commercially operable area that had been  
16 sprayed for budworm was not harvested within the  
17 10-year period, would you agree that is not consistent  
18 with the Ministry's policy?

19 MR. CHURCHER: A. Just to make sure I  
20 understand the question. An area that was designated a  
21 commercially operable forest, it was not harvested  
22 within the 10-year period; then, yes, that would not be  
23 consistent with the procedure.

24 And I believe in the procedure there is  
25 an indication of what recourse the Ministry would have,



1 if that was the case.

2 Q. That recourse includes reductions in  
3 the allowable cut, for example?

4 A. I believe that is the approximate  
5 wording, yes. I don't have the procedure in front of  
6 me.

7 Q. It's at page 151 of Exhibit 604A.  
8 And would it be a fair inference to draw that if the  
9 area sprayed was not harvested within that 10-year  
10 period, the spray program was unnecessary for the area  
11 as it relates to commercially operable forests?

12 A. No, not necessarily. In the 10-year  
13 period it would be quite likely to expect the budworm  
14 epidemic to end, therefore, the threat or the temporary  
15 threat that was there at the time of the spray program  
16 would no longer be there.

17 The spray program might have been quite  
18 successful in keeping those trees alive that otherwise  
19 many of them would have died if we had not sprayed.  
20 However, once the epidemic is, over the threat has been  
21 removed, then barring any other unforeseen  
22 circumstances or natural catastrophies like fire or  
23 blowdown, then the trees would continue to live.

24 However, without the spray program quite  
25 likely many of those trees would have died.

1 Q. Assuming the infestation was still  
2 there during the life of that 10-year period, would you  
3 agree with me, that the program would have been  
4 unnecessary?

5 A. Well, I guess I have trouble getting  
6 my mind around that one because, as I believe I  
7 indicated in my direct evidence, that there are no  
8 insects that I'm aware of in Ontario that tend to have  
9 a cycle longer than 10 years in any one given area.

10 But I can't think of anything or an  
11 instance when the infestation would persist longer than  
12 a 10-year period in any given stand or any given area.  
13 If we had a fictitious insect that lasted --

14 Q. Let's not talk about fictitious  
15 insects,

16 A. Yes.

17 Q. Let's talk about the one that you  
18 provided in the evidence in answer to an interrogatory  
19 from Ms. Cronk.

20 A. Okay.

21 Q. You provided figures for the period  
22 1967 to 1988. There was infestation and defoliation  
23 moderate to severe throughout all of those years; were  
24 there not?

25 A. Yes, throughout province there were.

1 Somewhere in Ontario there was moderate to severe  
2 defoliation from 1967 to 1988 and there is going to be  
3 some in 1989 and probably for a few more years.

4 What I'm saying is that in any given  
5 area, any given stand the infestation only lasts up to  
6 seven or eight years, sometimes as little as four or  
7 five years depending on the tree species that are in  
8 that stand, if we are talking about the insect spruce  
9 budworm.

10 Q. Speaking generally, however.

11 A. Generally a budworm epidemic will  
12 last no more than eight years in a given stand or a  
13 given area. When you look at the province as a whole,  
14 I believe my testimony was that the epidemic can last  
15 around 20 to 30 years as the insect moves from one  
16 portion of the province to another.

17 Q. The other aspect of your answer to  
18 our Interrogatory 21 which is contained in Exhibit 632  
19 related to question (a). I just wanted to clarify the  
20 numbers you gave us there. I'm sorry do you have it  
21 before you?

22 A. Yes, I do.

23 Q. You cite some volume figures in your  
24 answer for the three species combined, 7-million plus  
25 cubic metres. Do you see that?



1 A. Yes.

2 Q. Was that figure in relation to 76,526  
3 hectares?

4 A. Yes, it was.

5 Q. So that in relation to the  
6 commercially operable forests of 52,800 hectares, the  
7 number we see in the answer to Question 21 is inflated,  
8 is not the right answer. Is that right?

9 A. No, not necessarily. If you -- you  
10 indicated yesterday that your question intended to just  
11 address those commercially operable forests. I was  
12 not -- or I was unaware that that was the intention of  
13 the question.

14 A. However, the remaining -- 76 minus  
15 52, the remaining 24,000 hectares would have been  
16 called high value forest or termed as high value  
17 forest. Those forests as well have a value and,  
18 according to the procedure, they could include anything  
19 from plantations, to provincial parks, to research  
20 areas, to wildlife habitat, to areas that are destined  
21 to be harvested at some point in the future, areas that  
22 were deemed necessary for the sustained long-term  
23 annual allowable cut, I believe are the words that are  
24 in the procedure.

25 So those trees as well would have a value

1 and would have a value to be protected. So in that  
2 point of view or from that perspective, the figure that  
3 we used to calculate the commercially operable forest  
4 would also be applicable to the high value forest as  
5 well.

6 Q. But is it fair to say that some of  
7 the high value forest, the 24,000 plus hectares is not  
8 destined for cutting ever. Is that a fair inference?

9 A. I'm not aware of exactly what the  
10 breakdown of that 24,000 hectares was in high value  
11 forest. I think there are some portions of it that I  
12 recall - 1987 - I believe provincial parks -- there  
13 were at least a couple of provincial parks included in  
14 that area and so, yes, there would be some portion at  
15 least that would have been not destined for harvest.

16 But as to how much was sprayed to  
17 maintain the long-term annual allowable cut and how  
18 much of it was plantation and how much of it was  
19 research areas, those figures I don't have.

20 Q. Now, at the end of yesterday's  
21 testimony, Mr. Churcher, you -- or I introduced Exhibit  
22 675 which was your answer to our Interrogatory Question  
23 18. Let me know when you have it before you.

24 A. Yes, I have it.

25 Q. As part of that interrogatory we

1 asked you to provide particulars of how many hectares  
2 had been subjected to modified harvesting techniques to  
3 help control losses of insects -- or losses to insects  
4 within the area of the undertaking from 1980 to 1988.  
5 That is actually Item (b) on that page. Do you see  
6 that?

7 A. Yes, I do.

8 Q. And your answer appears at the bottom  
9 of page 2 of that exhibit and you say that:

10 "Modified harvest techniques is not  
11 listed under cultural control as you  
12 usually use that phrase to refer to  
13 harvest layouts such as strip cuts and  
14 block cuts, and that modified harvest in  
15 this sense is not related to harvest for  
16 cultural control."

17 You go on to note that:

18 "One could change or direct the areas  
19 planned for harvest to stands which had  
20 been damaged in order to control losses  
21 to insects."

22 And then you note that this is commonly  
23 done in the current timber management plans.

24 Looking at your answer and looking back  
25 at my question, we asked you for how many hectares had



1       been subjected to modified harvesting techniques to  
2       control insects or losses to insects for the period  
3       1980 to 1988. Would you agree I don't have a number as  
4       part of your answer?

5                   A. As part of the answer for (b), no the  
6       number is not there.

7                   Q. Is such a number...

8                   A. I think the answer is at the opening  
9       paragraph to (a) which indicates:

10                   "The decentralized nature of the Ministry  
11                   does not lend itself to maintaining  
12                   province-wide records and the degree of  
13                   detail required to fully answer the  
14                   question."

15                   When a modified harvest is done, to use  
16       that term, it's not necessarily specified that this was  
17       done, as your question states, modified harvest  
18       techniques to help control losses to insects. It may  
19       be recorded as a modified harvest for any number of  
20       reasons. So it's impossible to pull out a figure that  
21       says this area was harvested in a strip cut, for  
22       instance, for the purposes of forest pest control.

23                   Q. So the answer -- I'm sorry, continue  
24       with your answer?

25                   A. Sorry. I do indicate for I believe

1 the year 1987 on Figure 5 of my evidence there is an  
2 indication there in that particular year how much area  
3 was accelerated harvested.

4 Q. Sorry, where is Figure 5, the page  
5 number?

6 MR. FREIDIN: Page 101.

7 MR. CASTRILLI: Thank you.

8 MR. CHURCHER: Yes, page 101 of Exhibit  
9 604A. The last half of the answer in (b) indicates  
10 that:

11 "One could change or direct the areas  
12 planned for harvest."

13 And then we would call this an  
14 accelerated or re-allocated harvest. And Figure 5 on  
15 page 101 indicates how much of the area was scheduled  
16 for harvest anyway and how much additional harvest was  
17 salvaged or re-allocated. And that is appropriate for  
18 the 1987 northcentral region's spruce budworm program.

19 MR. CASTRILLI: Q. Can you tell me where  
20 on Figure 5 there is a figure I could pluck out that  
21 would answer the question that I asked with respect to  
22 modified harvesting techniques?

23 MR. CHURCHER: A. Well, for the year  
24 1987 in the northcentral region the Figure would be  
25 3,445 hectares. It's noted as that area that was

1 salvaged or salvage harvest.

2 Q. And that would be done by modified  
3 cutting?

4 A. That would be an indication -- I  
5 guess I'm unclear as to or unfamiliar with the term  
6 modified cutting. I raised that as an example of the  
7 last half of the answer (b). It says:

8 "One could, however, change or direct the  
9 areas planned for harvest to stands which  
10 have been damaged in order to control  
11 losses to insects."

12 I raised this example of a salvage  
13 harvest as being an example of that portion of the  
14 answer.

15 THE CHAIRMAN: But you could clearcut a  
16 damaged area as well; could you not?

17 MR. CHURCHER: Yes, definitely.

18 MR. CASTRILLI: Q. So it's conceivable  
19 that the salvage harvest figure is clearcut?

20 MR. CHURCHER: A. Quite conceivable yes.

21 Q. So the answer is -- the answer to my  
22 question in Interrogatory 18 is that you don't know?

23 THE CHAIRMAN: No, the answer to the  
24 question, Mr. Castrilli, as I understood it, was the  
25 province or the Ministry doesn't keep records



1 throughout the province on those areas which have been  
2 harvested on the basis of modified harvest with respect  
3 to the reasons why there's a modified harvest; i.e.,  
4 that it might be due to insect infestation.

5 MR. FREIDIN: Mr. Chairman --

6 MR. CHURCHER: Yes, that was my answer.

7 MR. CASTRILLI: I think that is  
8 consistent with he doesn't know.

9 THE CHAIRMAN: Well, that is consistent  
10 with the idea that the Ministry doesn't keep records in  
11 that fashion and, therefore, he cannot provide you with  
12 a figure.

13 MR. FREIDIN: Mr. Chairman, I think it  
14 might be helpful if the witness was asked whether in  
15 the answer he's making a distinction between modified  
16 harvest cut as has been explained by Mr. Hynard and is  
17 used by him and modified harvest plans which I believe  
18 is what the answer indicates is what the witness means  
19 by modified harvest.

20 MR. CASTRILLI: However he wishes to  
21 define what it is he thinks this question is about, is  
22 fine, I don't carry how he qualifies it, but I want a  
23 number. And it seems to me it's clear that the answer  
24 is not to be found on Figure 5. It's patently obvious  
25 on the face of the page.

1 THE CHAIRMAN: In the terms in which you  
2 asked the question, you are probably right.

3 MR. FREIDIN: It indicates:

4 "Where harvest plans were modified by  
5 cutting salvage harvest or accelerated  
6 cutting."

7 We agree it does not indicate what area  
8 was cut using a modified harvest method such as strip  
9 cutting or block cutting for the reasons that Mr.  
10 Churcher just gave.

11 MR. CASTRILLI: That is fine. I accept  
12 that answer.

13 Q. Mr. Galloway, I understand from your  
14 testimony that the desired number of crop trees at a 2  
15 metre by 2 metre spacing is only 2,500 stems per  
16 hectare; is that correct; that is, with respect to  
17 newly planted seedlings?

18 MR. GALLOWAY: A. Yes, that equates to a  
19 hundred per cent stocking.

20 Q. 2 metres by 2 metres is 6.6 feet by  
21 6.6 feet?

22 A. Approximately, that is correct.

23 Q. And can you confirm for me that in a  
24 spacing of that size the roots of the newly planted  
25 conifer seedlings are not going to utilize the total

1 area of soil?

2 A. Yes, that would be correct.

3 Q. And the purpose of herbicide tending  
4 treatments is to kill the competing vegetation for one  
5 or more years; is that right?

6 A. The purpose of the cleaning treatment  
7 is to reduce and control that competing vegetation for  
8 that period, that's correct.

9 Q. Would it be fair to say that when the  
10 competing vegetation is killed there will be spaces  
11 between the conifers that have no live roots?

12 A. Depending on the age of the conifers.  
13 At the time of establishment there would be spaces  
14 between the conifers where the tree roots would not be  
15 at, as that stand approached closure, then the roots  
16 would also be approaching closure, so there would be --  
17 they would take more of that area and the trees would  
18 by then be interacting at the root level as well.

19 Q. There is a little bit more there  
20 than -- I think I want to break down your answer if I  
21 could, so I understand it, if you don't mind.

22 A. Certainly.

23 Q. I asked you: Would it be fair to say  
24 that when the competing vegetation is killed, let's say  
25 initially killed, there will be spaces between conifers



1 which have no live roots. And your answer is yes to  
2 that?

3 A. If the competing vegetation was  
4 totally eliminated there would be no live roots. At  
5 the time of treatment normally three, four years after  
6 renewal approximately, depending on the requirements,  
7 the roots of the crop trees might not be totally  
8 occupying the site and the roots of the competing  
9 vegetation would be inbetween as well as beside.

10 At the time of treatment there may still  
11 be live roots on an area unless absolute total kill of  
12 all vegetation had been completed on that project,  
13 which is very unlikely.

14 Q. But it's possible, is that a fair  
15 conclusion?

16 A. Only under the system as that  
17 Watershed 2 we discussed yesterday.

18 Q. But not in Ontario as practised by  
19 MNR?

20 A. No. I don't believe any of our  
21 treatments would totally eliminate the competing  
22 vegetation from the site and I have never seen such  
23 total control in any site.

24 Q. Now, Ms. Krishka, I understand from  
25 your evidence that the objective of herbicide use in

1 Ontario is not to eliminate all non-crop vegetation  
2 from the site permanently; is that right?

3 MS. KRISHKA: A. Yes. I might add that  
4 there is lots of vegetation on the site that isn't  
5 competing. So if you talk about eliminating competing  
6 vegetation, there is still other vegetation on the site  
7 in most cases.

8 Q. In your answer to our Interrogatory  
9 Question 17, which I believe is now part of Exhibit  
10 671 -- do you have that before you?

11 A. Yes, I do.

12 Q. Actually that may not have been  
13 written by you, Ms. Krishka, I believe that may have  
14 been answered by Mr. Galloway.

15 MR. GALLOWAY: A. That's correct.

16 Q. You indicated, Mr. Galloway, that  
17 2,500 hectares -- 2,500 trees per hectare or stems per  
18 hectare represented full stocking and I believe you  
19 repeated that answer just earlier this morning at the  
20 time of the establishment of the plantation; is that  
21 right?

22 A. Yes, that's correct.

23 Q. That would seem to suggest to me an  
24 attempt at a pure plantation, at least initially; would  
25 it not?

1           A. In that prescription, if on that site  
2 if the target prescription was 2,500 hectares -- 2,500  
3 trees per hectare of jack pine for instance, yes, that  
4 would be the objective of that prescription.

5           Q. So one could anticipate on that  
6 particular plantation less diverse habitat?

7           A. On that -- for example, a site, dry  
8 jack pine sand flat, were quite and still a productive  
9 site, 2,500 trees per hectare of jack pine might be the  
10 target and on that site that would be a jack pine  
11 conifer stand afterwards and not as diverse as a rich  
12 productive site. It would be very similar to what was  
13 harvested off the area.

14          Q. So, Mr. Buss, we could also expect  
15 lower numbers of wildlife?

16          MR. FREIDIN: He said...

17          MR. BUSS: Lower numbers from what, from  
18 what was there before the cut?

19          Q. That's right, and before the  
20 plantation?

21          MR. BUSS: A. I don't know whether you  
22 would know there was low numbers, but if you have  
23 changed the diversity for a period of time there is  
24 likely going to be a respondent change in the wildlife  
25 community.



1                   And, as Mr. Galloway has indicated, if  
2                   you are putting the stand back into essentially what it  
3                   was previous to the cut, at some point in time the  
4                   stand will look very much like it does in its  
5                   plantation form. And I don't know, like I say, there  
6                   would be changes in numbers. Whether you could say  
7                   whether it was less or not, there may be less than  
8                   there were before it was harvested, but it would  
9                   probably be the same as it was when that stand was  
10                  developing too.

11                  Q. It's a monoculture though that you  
12                  have developed; isn't it?

13                  A. Well, I'm not -- I was confused a few  
14                  minutes ago when you were talking about the stocking.  
15                  The stocking requirements or target represent, as I  
16                  understand it, a requirement or a stocking assessment  
17                  for the commercial species, it doesn't indicate that  
18                  there are no other trees inbetween the 6 by 6 spacing  
19                  and I haven't -- like Mr. Galloway, I have not seen a  
20                  stand that would look like this floor with seedlings 6  
21                  by 6 spacing on it. There is always vegetation  
22                  inbetween it.

23                  Is that what you mean?

24                  Q. At that kind of stocking, 2,500 per  
25                  hectare, 100 per cent stocking, are you not in fact

1 attempting - whether or not you in fact obtain - are  
2 you not in fact attempting to obtain a pure plantation?

3 A. Yes, that would be the objective on  
4 that site, a pure jack pine plantation.

5 THE CHAIRMAN: But is that a pure  
6 plantation in the sense that the commercial specie is a  
7 pure plantation as opposed to there being nothing else  
8 other than that one specie on the site.

9 MR. GALLOWAY: Yes, it would be. As we  
10 discussed the other day, it would be a monoculture as  
11 far as a crop species is counted. There will be other  
12 vegetation both minor and woody species interspersed  
13 among there.

14 MR. CASTRILLI: Q. Mr. Buss, isn't there  
15 a concern with the development of monocultures in  
16 relation to wildlife?

17 MR. BUSS: A. That's correct.

18 Q. And isn't that concern outlined in  
19 your evidence?

20 A. Yes, it is.

21 Q. At page 414, for example. Mr. Buss,  
22 if you are wondering where I am referring to on the  
23 page, it is the two paragraphs below the heading:  
24 Stand Establishment. I am going to read them into the  
25 record.

1                   This is in relation to British Columbia,  
2       but they are talking about monocultures:

3                   "In British Columbia management practices  
4                   associated with stand establishment are  
5                   directed to converting existing  
6                   shrublands to conifers, usually  
7                   monocultures, and to establishing..."

8                   Mr. Chairman, it is Exhibit--

9                   THE CHAIRMAN: 603B?

10                  MR. CASTRILLI: --603B and it is page 414  
11       beginning under the heading: Stand Establishment.

12                  THE CHAIRMAN: I have it. Thank you.

13                  MR. CASTRILLI: Q. The author of the  
14       article, in your evidence, indicates that:

15                  "In British Columbia management practices  
16                  associated with stand establishment are  
17                  directed to converting existing  
18                  shrublands to conifers, usually  
19                  monocultures, and to establishing the  
20                  desired crop species with minimal delay."

21                  Then going down to the next paragraph,  
22       the author notes:

23                  "The influence of stand establishment  
24                  upon wildlife seldom has been addressed  
25                  in western North America. While we know



1                   that planting habitable species  
2                   encourages such wildlife as deer and blue  
3                   grouse and that rodent control harms  
4                   rodents, we have not examined properly  
5                   the consequences of establishing  
6                   monocultures with their attendant lack of  
7                   habitat diversity. We would predict an  
8                   impoverished fauna, particularly in  
9                   monocultures harvested under short  
10                  rotations (i.e., 40 to 60 years)."

11                 Do you agree with that assessment?

12                 A. Yes.

13                 Q. Do you agree it is possible to occur  
14                 in Ontario where we attempt monocultures?

15                 A. Yes, I agree it would be possible.  
16                 We would be just as concerned in terms of evaluating  
17                 habitat. Biologists -- habitat biologists would be  
18                 looking at monocultures that occur as a result of  
19                 natural forces in the same way as we would of those  
20                 that might occur as a result of forest management  
21                 activities, and that would be evaluating the extent of  
22                 them and evaluating them against whatever particular  
23                 management objectives you might have.

24                 So you are right, it is a concern, it is  
25                 a thing that we are watching, are aware of.

1 Q. Now, in a further interrogatory we  
2 asked -- it is Exhibit 648 and it is Interrogatory  
3 Question 8, our Interrogatory Question 8.

4 We asked the panel to provide us with  
5 particulars of what are the expected yields with and  
6 without tending treatments for each working group  
7 considered as a crop species for each type of site to  
8 be treated in each management unit within the area of  
9 the undertaking.

10 And can I just confirm that your answer  
11 is that the Ministry does not have estimates of the  
12 future yields of tended stands; is that right?

13 I believe this question is probably  
14 directed to Mr. Hynard, I may be wrong.

15 MR. HYNARD: A. Yes. The question is:  
16 Provide particulars on the expected yields with and  
17 without tending treatments for each working group for  
18 each type of site to be treated in each management unit  
19 within the area of the undertaking. And, yes, that is  
20 correct, we do not have estimated or expected yields  
21 for those variables.

22 Q. Now, Mr. Hynard, I understand that  
23 among the considerations a unit forester must weigh in  
24 selecting the tending treatment is the expected result  
25 of a treatment; is that right?

1 A. Yes, that is right.

2 Q. Would you agree that without knowing  
3 the yields to be attained that it is very difficult for  
4 a decision-maker to judge the necessity and worth of a  
5 tending project?

6 A. Well, it certainly -- it certainly  
7 complicates his decision. I should point out that for  
8 87 per cent of the tending treatments conducted in  
9 1986-87, the objective -- or the treatment was a  
10 cleaning treatment in which the objective is to ensure  
11 the survival or success of the newly regenerating  
12 stand.

13 And so it comes right down to that, what  
14 is the tending needs of the crop in order to ensure its  
15 survival or success, its attainment of free to grow  
16 status. That doesn't require that the forester know  
17 the exact expected yield with treatment. He is  
18 ensuring its survival.

19 Q. Mr. Hynard, at the bottom of page 116  
20 of your evidence -- do you have that page?

21 A. Yes.

22 Q. The purpose of the discussion on the  
23 page is about choosing the appropriate tending  
24 treatment and you outline five considerations which the  
25 unit forester must weigh. If I go down to Item No. 4 I

1 see, among other things, the expected results of the  
2 treatment?

3 A. Yes.

4 Q. Would you agree with me that without  
5 knowing the yields to be attained it is going to be  
6 very difficult for the decision-maker, whether it is a  
7 unit forester or whoever, to judge the necessity and  
8 worth of the tending project?

9 A. No, I don't agree with that.

10 Q. So you don't agree with what you  
11 wrote on page 116?

12 A. No, I don't agree with your  
13 statement. Your statement was it would be very, very  
14 difficult for the forester to -- well, essentially  
15 prescribe the treatment not knowing the expected yield.  
16 Expected results is not exactly the same thing as  
17 knowing the final yield at harvest at the end of the  
18 full rotation.

19 Q. Is Item 4 speaking about expected  
20 yield?

21 A. No, it is speaking about expected  
22 results. If the objective of the treatment is to free  
23 or liberate the newly regenerating stand from its  
24 immediate competition, then the result of that  
25 treatment would be the freedom of that newly



1 regenerating stand, not necessarily -- the objective  
2 would not be to achieve "x" number of cubic metres per  
3 hectare at age 85. The objective of treatment and the  
4 expected results might be much closer at hand than  
5 that.

6 THE CHAIRMAN: But, Mr. Hynard, if you  
7 are in fact successful in alleviating the competition  
8 to liberate the newly generating stands, would you also  
9 not indirectly be increasing the yield because those  
10 trees would in fact grow to maturity and there would be  
11 something to harvest?

12 MR. HYNARD: Well, absolutely. If, for  
13 example, the objective of the treatment was to attain  
14 free to grow status and as a result of that treatment  
15 type on that site type that he was getting those kinds  
16 of results, his stands were achieving free to grow  
17 status, he would have his expected result and, of  
18 course, that stand is now back into the MAD landbase  
19 and contributing towards allowable cut; it is growing  
20 better, it is going to have a higher yield, although  
21 that forester may not know exactly what that expected  
22 yield will be at harvest age.

23 MR. CASTRILLI: Q. So that if I am clear  
24 on your answer, Mr. Hynard, with respect to Item 4 on  
25 page 116, when you say expected results you do not mean

1 to include expected yield; is that right?

2 MR. HYNARD: A. I would say, yes. If  
3 the objective was not to attain a certain yield, the  
4 results would not be evaluated with respect to final  
5 yield. So, yes, you are right.

6 Q. That's fine. I believe in the same  
7 exhibit, it is our Interrogatory 10.

8 THE CHAIRMAN: That's on Exhibit 671?

9 MR. CASTRILLI: That's correct.

10 Q. I believe this is still directed to  
11 you, Mr. Hynard.

12 MR. HYNARD: A. If you could just give  
13 me a moment while we find Exhibit 671. Yes, I have it.

14 Q. We asked you to provide us with  
15 particulars of the cost analysis for each tending  
16 project carried out in all management units within the  
17 area of the undertaking in the two most recent years  
18 for which such data is available.

19 I believe the answer -- the essence of  
20 the answer to that question was you are unable to  
21 supply that information; is that right?

22 MR. MURPHY: Keeping in mind, by the way,  
23 the time period we had to answer that question he  
24 asked.

25 MR. HYNARD: Yes. I think unable in that

1 sense is unable, given the constraints at the moment.  
2 Perhaps unwilling would be a better word for the simple  
3 reason that you were asking for an analysis of the cost  
4 of every project, every tending project on every  
5 management unit across the area of the undertaking for  
6 the past two years.

7 And as our answer reads:

8 "This would be a major undertaking  
9 requiring a manual search, sort and  
10 copying of hundreds of records. The cost  
11 analysis is performed on all projects,  
12 the records are stored in each district  
13 office. Cost records on FMA projects are  
14 maintained by the FMA holder."

15 And when I say analysis, I mean a  
16 detailed look at cost or a breakdown of costs into  
17 their various components.

18 THE CHAIRMAN: Mr. Castrilli, that is  
19 unreasonable, in the Board's view, given the fact that  
20 this information is not on computer.

21 MR. CASTRILLI: Oh, I don't wish to  
22 pursue the interrogatory, I just wanted it on the  
23 record.

24 Q. Mr. Hynard, you introduced in Exhibit  
25 612, which I guess is entitled -- I know is entitled:

1 A Real Example Demonstrating Financial Considerations  
2 in Making Silvicultural Decisions.

3 Do you have that in front of you?

4 MR. HYNARD: A. Yes, I do.

5 Q. I am sorry, just before we move to  
6 Exhibit 612, I just want to return for a moment to  
7 Exhibit 671 and Interrogatory Question 10.

8 Would you agree with me that it would be  
9 difficult to do a financial analysis if you do not know  
10 what the future yield will be?

11 A. Yes. It would be more difficult,  
12 yes.

13 Q. Thank you. Let's move on to Exhibit  
14 612. Now, this is - and correct me if I am wrong - is  
15 this an example of the type of cost analysis performed  
16 by MNR on silvicultural projects, albeit a before -- an  
17 example of a before as opposed to an after review?

18 A. No, this isn't cost analysis at all.

19 Q. Explain what it is?

20 A. Well, it is a demonstration of how  
21 economic efficiency in financial analysis might be used  
22 in making silvicultural decisions.

23 You recall I said in earlier evidence  
24 that that was a factor that the unit forester weighs in  
25 making silvicultural decisions, economic efficiency,



1 that is, and this is an example of how such analysis  
2 might be applied in the absence of data on final yield.

3 Q. I see. And in particular this  
4 example is directed to attempting to address the  
5 question of whether the thinnings proposed were  
6 warranted as silvicultural treatments -- investments;  
7 is that correct?

8 A. Yes.

9 Q. And just turning to page 2 of that  
10 exhibit, the Figure VHT, value of the harvest with  
11 treatment. Do you see that?

12 A. Yes, I see that.

13 Q. That's the unknown the equation is  
14 attempting to solve; is that correct?

15 A. Yes.

16 Q. And could you just confirm for me  
17 that the number you used for VHW, which is value of the  
18 harvest without treatment, is 1292.38 per acre? If you  
19 wanted to give me the answer to that later that will be  
20 fine.

21 A. Yes, I will check the figure over the  
22 break and provide you the answer after.

23 Q. Thank you. Now, continuing with page  
24 2 of this exhibit, looking down at the bottom of the  
25 page, your interest rate I is 3 per cent, and that's

1 the interest rate you assumed for the purposes of this  
2 example; is that correct?

3 A. Yes, it is. I don't see it here,  
4 just...

5 Q. Sorry, it is at the bottom under--

6 A. Yes.

7 Q. --the next to last one.

8 A. Three per cent, that's right.

9 Q. What did you rely on for that choice?

10 A. I relied upon the advice of Larry  
11 Lambert who was the Chief Forest Economist for the  
12 Ministry of Natural Resources in 1983, and Mr. Lambert  
13 in advising me on an appropriate interest rate took a  
14 look at market interest rates and inflation over about  
15 a 20-year period, as I recollect, and the difference  
16 between the two was in the order of 3 per cent and an  
17 interest rate with the inflation -- expected inflation  
18 removed is known by the term real interest rate.

19 Q. So that 3 per cent figure is a real  
20 interest rate; is that right?

21 A. Yes, that's what it is meant to  
22 represent.

23 Q. And did you subject these  
24 calculations to a sensitivity analysis at different  
25 interest rates?

1                   A. Not this particular one. I have  
2                   adopted -- I normally use a 3 per cent interest rate,  
3                   but I have done sensitivity analysis before. The one  
4                   factor that this calculation is very sensitive to is  
5                   the value of harvest without treatment.

6                   Q. Well, actually that was my next  
7                   question. Did you subject these calculations to a  
8                   sensitivity analysis using different assumed values for  
9                   the harvest without treatment?

10                  A. No, I didn't actually conduct a  
11                  sensitivity analysis, but while I was doing the  
12                  analysis I did note that value of harvest without  
13                  treatment is very sensitive to that, for the simple  
14                  reason that I was calculating the response necessary in  
15                  order to justify treatment.

16                  Because that value at harvest without  
17                  treatment is so low in makes the percentage figure very  
18                  high. The value of harvest without treatment is so low  
19                  because these unmanaged stands yield so -- such low  
20                  volumes. Those are our average yields today in Minden  
21                  from hardwood stands.

22                  Q. This was a harwood forest?

23                  A. Yes, it is.

24                  Q. That's fine, thank you.

25                  A. Because our yield today is so low

1 that percentage would be very high. Actually, if you  
2 look at the number of crop trees that have been  
3 released and calculate the --

4 Q. Sorry, what are you referring to?

5 A. On page 1. Just provide me a moment  
6 please while I find the spot.

7 Q. Perhaps you could find it at the  
8 break and we can come back to it.

9 A. Sure.

10 Q. Now, we asked Ms. Krishka, I believe,  
11 in what is now Exhibit 627, it is interrogatory -- our  
12 interrogatory Question 11. Do you have the exhibit,  
13 Ms. Krishka?

14 MS. KRISHKA: A. Yes, I do.

15 Q. We asked you to provide particulars  
16 of the total yield per hectare of all tree species for  
17 herbicide treated areas and the total yield per hectare  
18 for non-treated areas, and your answer provides  
19 references to studies which report volume per hectare  
20 of conifers; is that correct?

21 A. Yes.

22 Q. And can you confirm that the answer  
23 provides information with respect to the reported  
24 yields of conifers only; is that correct?

25 A. Yes.



1 Q. You have not reported the total yield  
2 per hectare; would you agree?

3 A. If by meaning total yield per hectare  
4 you mean merchantable yield at time of harvest.

5 Q. No, I mean you have not reported on  
6 the hardwoods; is that correct?

7 A. No, I don't have any data here on  
8 hardwoods.

9 Q. Thank you.

10 MS. MURPHY: Bear in mind the question  
11 was related to the studies examined by Ms. Krishka  
12 which were about conifers.

13 MR. CASTRILLI: The question was about  
14 treated and non-treated areas.

15 MS. MURPHY: In the studies examined by  
16 Ms. Krishka which were about conifers.

17 MR. CASTRILLI: Q. Can you advise me  
18 whether poplar can provide more volume than conifers?

19 MR. GALLOWAY: A. Yes. On certain sites  
20 the volume of poplar per hectare total might be higher  
21 than the conifers, that's true.

22 Q. Mr. Galloway, are you familiar with  
23 Plonski's yield tables?

24 A. Yes.

25 MR. CASTRILLI: Mr. Chairman, I would

1 like to make excerpts from Plonski's yield tables, the  
2 metric version, the next exhibit.

3 THE CHAIRMAN: Very well. That will be  
4 Exhibit 676.

5 MR. CASTRILLI: (handed)

6 THE CHAIRMAN: Thank you.

7 ---EXHIBIT NO. 676: Excerpts from Plonski's yield  
8 tables, metric version.

9 MR. CASTRILLI: Mr. Chairman, what I  
10 have --

11 MS. MURPHY: Do the witnesses have a  
12 copy?

13 MR. CASTRILLI: I'm sorry. (handed)

14 MR. GALLOWAY: Thanks.

15 MR. CASTRILLI: Mr. Chairman, the  
16 excerpts I have extracted from the yield tables relate  
17 to Site Class 1 for black spruce, jack pine and  
18 aspen -- or poplar.

19 MR. FREIDIN: Black spruce, jack pine and  
20 poplar?

21 MR. CASTRILLI: That's right.

22 Q. Mr. Galloway, if we could begin, I  
23 would ask you to attempt to compare these all at the  
24 same time.

25 Would you agree with me that for any age

1 in years after year 30 that the wood volume, or indeed  
2 the total production under gross total volume of aspen  
3 or poplar exceeds that of jack pine and black spruce?

4 MR. GALLOWAY: A. Yes, I would agree  
5 with that.

6 Q. Thank you. So that it is not simply  
7 a question of some particular sites, but as a general  
8 rule; is that a fair conclusion?

9 A. No. If I might draw on another  
10 example and the silvicultural guide to the spruce  
11 working group -- I don't know the exhibit number of  
12 that.

13 MR. FREIDIN: I think 353.

14 MR. GALLOWAY: In that -- on page 15, for  
15 example, there is a sample of an edaphic grid, and I am  
16 only using the spruce guide to show you that grid -- an  
17 edaphic grid is just the soil, moisture and nutrient  
18 regime grid.

19 And if you -- on that grid the moist,  
20 rich areas typically would be the aspen Site Class 1.  
21 The black spruce Site Class 1 could occur on that  
22 moist, rich area, but would also occur on the moist --  
23 the more moist and medium area as well, and the jack  
24 pine Site Class 1 could in fact -- would occur on that  
25 rich area.

1 All three grow very well on that rich  
2 area, but Site Class 1 jack pine would also occur on  
3 the drier, medium area sands, for instance, where the  
4 aspen would not be Site Class 1, it would be Site Class  
5 2.

6 So on those rich areas, the rich as well  
7 as fresh to moist sites, the total volume on those  
8 sites, the aspen in fact might outproduce the jack pine  
9 and the black spruce.

10 The other part of the equation in Mr.  
11 Hynard's analysis is the product value and that has to  
12 be considered and those change regularly but, for  
13 example, at this moment, the end product value of the  
14 aspen is less than the end product value of the  
15 conifers. That may change in the next while and it, in  
16 fact, has changed from virtually zero to quite high  
17 proportions in certain areas where a market for aspen  
18 has occurred.

19 MR. CASTRILLI: Q. We have gone well  
20 beyond my original question. We were talking about  
21 volumes and, generally speaking, one can rely on  
22 Plonski's yield tables; can one not?

23 MR. GALLOWAY: A. The Plonski yield  
24 tables are quite good and are appropriate on a  
25 provincial scale basis.



1 Q. That's what we are talking -- let's  
2 keep it general for the purposes of this discussion.

3 A. Certainly.

4 Q. Generally speaking then, one would  
5 see greater volume produced for aspen than one would  
6 see for jack pine and black spruce; is that correct?

7 A. If you were on that rich, moist soil  
8 type and that's a possibility, yes.

9 Q. So that if I could posit the  
10 hypothetical that if the Ministry's tending treatments  
11 were in fact having the effect, albeit unintended, if I  
12 can put it this way, of killing or reducing hardwood  
13 species such as aspen, would you agree that there is  
14 the potential for an actual reduction in the total  
15 biomass of a site?

16 A. The reduction could occur of total  
17 biomass on the site by a treatment, that's correct.

18 You would have to -- the objectives for  
19 that site and what you need to grow on a forest level  
20 planning - and in my direct evidence I indicated the  
21 impact of all stands when summed the forestry level -  
22 it would help in the determination of that treatment.

23 You might, in fact, on some of those rich  
24 sites be growing an aspen crop and not a conifer crop.

25 Q. Do we have any evidence from this

1 panel on what the effect of tending is on the total  
2 yield per hectare, documentary evidence?

3 A. I don't think we put in total yield  
4 per hectare changes. That information, unless it was  
5 by site type, would not be very relevant in my mind.

6 Q. Well, whether or not it is relevant  
7 in your mind, the answer to my question is: There is  
8 no documentary evidence on the record with respect to  
9 it; is that right?

10 A. Yes, I believe that's correct.

11 Q. Thank you. We asked as well - and  
12 forgive me, I don't actually have the individual or who  
13 I believe the question should be directed to - so I am  
14 speaking now of what is Exhibit 657 which is our  
15 Interrogatory Question 14.

16 The question was directed to whoever was  
17 the author of paragraph 6 of page 67.

18 THE CHAIRMAN: I'm not sure that we have  
19 that one, Mr. Castrilli.

20 MR. CASTRILLI: Exhibit 657. Mr.  
21 Chairman, perhaps I can come back to this and during  
22 the break Exhibit 657 can be retrieved.

23 I will come back to that.

24 MS. CRONK: Mr. Castrilli, here's an  
25 extra copy. (handed)

1 ---Discussion off the record

2 MS. CRONK: I take it back.

3 MR. CASTRILLI: Mr. Chairman, Ms. Cronk  
4 has kindly offered her copy of Exhibit 657. (handed)

5 THE CHAIRMAN: We were about to order her  
6 to produce it.

7 MS. CRONK: The purpose thereof?

8 THE CHAIRMAN: Seemed reluctant to do so.

9 MR. CASTRILLI: She was just trying to be  
10 helpful.

11 THE CHAIRMAN: Okay.

12 MR. CASTRILLI: She was helpful. Thank  
13 you.

14 Q. Mr. Hynard, I think you are the right  
15 person then; is that right?

16 MR HYNARD: A. Yes, I'm not the author  
17 of the response, but I can certainly speak to it.

18 Q. All right, that's fine. We asked in  
19 Interrogatory No. 14, which is now Exhibit 657, what  
20 the Ministry of Natural Resources considered the future  
21 tree crop species to be.

22 And the answer I understand is that  
23 currently -- the answer appears to be that the current  
24 commercially preferred species are expected to be the  
25 future crop species; is that right?

1 A. Yes, that is right.

2 Q. And I understand that an objective of  
3 the Ministry in cleaning treatments is to increase the  
4 long-term growth and yield of conifer trees; is that  
5 right.

6 A. Well, certainly that is the objective  
7 of some tending treatments, not all.

8 Q. Paragraph 30 at page 73 of what is  
9 Exhibit 603A. Two major objectives of cleaning  
10 treatments, one of which is to increase the long-term  
11 growth and yield of conifer trees. It is a general  
12 proposition. I presume that is accurate?

13 A. Yes, those are two major objectives  
14 of cleaning treatments. Other objectives are stated  
15 elsewhere in the statement of evidence. I will just  
16 quickly find it.

17 Q. Well, let's just focus on that for  
18 the moment and we will come back to that issue. That  
19 is an objective and at the time of the writing of this,  
20 these were the two major objectives of cleaning  
21 treatments; is that correct?

22 A. Those are two major objectives of  
23 cleaning treatments. Not all cleaning treatments, but  
24 many, yes.

25 Q. Now, in returning to Exhibit 657, and



1 looking at the chart that is attached to that page  
2 which, as I understand it, is derived from MNR's  
3 statistics for several years, 1983, '87 and '88, can  
4 you confirm for me that the tree species whose  
5 utilization has increased most dramatically in terms of  
6 total amount or total volume from 1981 to 1987 has been  
7 poplar?

8 A. Yes, I can confirm that.

9 Q. Approximately -- and if we look --

10 MR. CASTRILLI: Mr. Chairman, if we look  
11 at the page we are looking at the bottom of that table  
12 under hardwoods.

13 Q. And in 1981 we were looking at  
14 approximately 1.4-million cubic metres harvested on  
15 Crown lands with respect to poplar, and in 1987 we were  
16 looking at 2.5-million plus.

17 Mr. Hynard, would you accept, subject to  
18 verification, that is roughly a 78 per cent increase?

19 A. Yes, I will accept that. One of the  
20 reasons that a major objective of cleaning treatments  
21 is not to release poplar is that poplar is a very, very  
22 strongly competitive species and it normally does not  
23 require cleaning treatments in order to grow well where  
24 it is a commercially preferred species.

25 Q. And, Mr. Hynard, turning back to the

1 text answer to your interrogatory -- or to our  
2 interrogatory that you responded to, I understand that  
3 it's -- would it be fair to conclude that since MNR  
4 expects no significant change in harvest pattern to  
5 occur by the turn of the century, as you note in the  
6 answer to Item (b) on that page, that the amount of  
7 poplar harvested will keep increasing.

8 Is that a fair inference?

9 A. The inference that the amount of  
10 poplar will continue to gain until the--

11 Q. End of the century.

12 A. --turn of the century?

13 Q. Yes.

14 A. Well, I certainly hope that it will  
15 continue to gain. At what level it will stabilize and  
16 at what date it will stabilize as its share of the  
17 harvest, I'm not sure.

18 Q. Well, is there any indication in the  
19 data you provided that it's going to stabilize at all?  
20 Isn't in fact the indication from the data that it's  
21 increasing?

22 A. Yes. I think back in Panel 10 there  
23 was evidence given on poplar market constraints and  
24 what they were and what the expectations in general  
25 terms might be, but certainly it is our hope that

1 poplar utilization does continue to increase and we  
2 hope that it will before the turn of the century.

3 Q. And the data attached to Exhibit 657  
4 and the text response suggests that it will continue to  
5 increase; is that correct?

6 A. Yes. Yes, that is correct. And when  
7 it states here that "no significant change in harvest  
8 patterns will occur", you will notice that the species  
9 that is cut -- the largest volume that is cut in  
10 Ontario is spruce at 8.8-million cubic metres followed  
11 by jack pine at 5.7.

12 So when we say that there will not be a  
13 significant change, we expect that spruce and pine will  
14 continue to be the species of greatest demands and  
15 greatest harvest and that poplar will continue to grow  
16 as you stated, but it will not become the species of --  
17 with the highest volume by the turn of the century.

18 Q. Well, it's hard to know, but would it  
19 be fair to say that from the data in Exhibit 657 that  
20 essentially we see no change from 1981 to '87 with  
21 respect to jack pine and spruce.

22 Basically what you were harvesting in  
23 1981 you are harvesting now?

24 A. Yes, that's right. That's right. I  
25 think one of the reasons --

1 Q. So if anything is stabilized it's  
2 jack pine and spruce?

3 A. Yes, they appear stable on that  
4 table.

5 Q. And if anything has increased over  
6 the last six years it's poplar; is that right?

7 A. Yes, that's right.

8 Q. Thank you. Now, if the use and  
9 utilization of hardwoods -- sorry, let me just keep it  
10 to poplar.

11 If the use of poplar is increasing, is it  
12 reasonable for the Ministry in its tending programs,  
13 whether intended or not, to get rid of poplar by  
14 herbicide treatments to increase conifer release?

15 A. Is that directed to me, Mr.  
16 Castrilli?

17 Q. Yes.

18 A. I didn't capture the question in  
19 there. Could you repeat it for me, please?

20 Q. I would be delighted. If the use  
21 of -- excuse me, if the use of poplar is increasing, is  
22 it reasonable for the Ministry of Natural Resources to  
23 try and get rid of poplar by herbicide treatments to  
24 increase conifer release?

25 A. Yes, I believe it is reasonable. The



1 reason that I state it is reasonable; on many, many  
2 sites across Ontario the conifers, pine and spruce, are  
3 the species best suited to the site, they are the  
4 species of -- the crop of choice by the industry for a  
5 variety of reasons which have been given already at  
6 these hearings, and that it is quite reasonable to not  
7 rid the stand of poplar but to control poplar where  
8 conifer is being grown as the crop species. That is  
9 perfectly reasonable.

10 Q. Do we have any evidence on what the  
11 loss to the Ontario economy has been by destroying  
12 poplar by tending methods?

13 A. Sorry, the first part again, has  
14 there been any...?

15 Q. Do we have any evidence on what the  
16 loss to the Ontario economy has been by destroying  
17 poplar by tending methods?

18 A. No, we have no evidence. We don't  
19 believe there has been a loss.

20 Q. And what is that based on? What is  
21 that -- excuse me, what is that belief based on?

22 A. Well, that belief is based on the  
23 fact that the supply of poplar is greater than the  
24 demand, that the conifers are the preferred crop  
25 species on many, many sites and that it is in the

1 economic interests of the province to grow those  
2 species on those sites.

3 They were the species, they were the crop  
4 that were taken off in the last harvest and are being  
5 replaced. We don't believe there has been any loss to  
6 the economy as a result of managing those sites that  
7 are suitable to conifer and had a cut of conifer taken  
8 off them and replaced with conifer.

9 And if that means controlling poplar as a  
10 tending treatment in that production regime, that is  
11 perfectly reasonable.

12 Q. So you believe there is no loss, but  
13 there's no documentary evidence before this panel with  
14 respect to that belief; is that correct?

15 A. That's correct.

16 MR. CASTRILLI: Mr. Chairman, this would  
17 be an appropriate place to break.

18 THE CHAIRMAN: Very well. We will break  
19 for 20 minutes. Thank you.

20 Are you through with 657 or do you want  
21 us to bring it back?

22 MR. CASTRILLI: Actually I think you  
23 probably should obtain it from your files.

24 THE CHAIRMAN: Thank you.

25 ---Recess taken at 10:25 a.m.

1 ---On resuming at 11:00 a.m.

2 THE CHAIRMAN: Thank you. Be seated,  
3 please.

4 MR. CASTRILLI: Are we all there?

5 Q. I understand, just before the break,  
6 I believe I was asking this question of Mr. Galloway,  
7 and correct me, part of the answer may have also been  
8 given by Mr. Hynard. I would like to return to the  
9 issue of poplar for a moment.

10 I recall asking you what had been the  
11 loss to the Ontario economy by destroying poplar with  
12 tending methods and you indicated you didn't believe  
13 there had been any loss and that belief I took -- my  
14 notes indicate that that belief was based in part on  
15 the fact that the supply of poplar is larger than the  
16 demand.

17 Was that your answer, Mr. Hynard?

18 MR. HYNARD: A. Yes, as I recollect that  
19 was part of my answer.

20 Q. Do you agree with me that the supply  
21 of spruce and jack pine is also greater than demand?

22 A. I'm not able to answer provincially.  
23 They would depend on a particular management unit and  
24 it would depend on a lot of variables; operability,  
25 extraction costs and so on. I can't state that answer,

1 no.

2 Q. Well, for the FMA licences that have  
3 five-year reviews, has the supply of conifer exceeded  
4 the demand?

5 A. It's my understanding that on those  
6 FMAs that have had their fifth year review the level of  
7 harvest was lower than the level of MAD. I'm not sure  
8 that equates to what your question asked: Is the  
9 supply greater than the demand?

10 Q. In essence, you don't know?

11 A. That's right, I'm unable to answer  
12 that question.

13 Q. That's fine, thank you.

14 A. Even in a situation where the supply  
15 did not exceed the demand, there may not necessarily be  
16 a loss to the economy of tending those species if the  
17 gains to the economy were even greater as a result of  
18 conifer production.

19 Q. But you don't know the answer to that  
20 one either; do you?

21 A. Well, not on a definitive basis, no.

22 Q. Now, I just want to return again to  
23 the issue of expected yield and I believe there was a  
24 discussion that you and I were having, Mr. Hynard.

25 I had asked you -- without knowing the



1 yields to be attained, I asked you if you would agree  
2 that it would be difficult for a decision-maker to  
3 judge the necessity and worth of a tending project.

4 And correct me if I'm wrong, I have your  
5 answer as being that if the objective is to release --  
6 to ensure survival and free to grow status, you do not  
7 need to know the expected yield at harvest. Was that  
8 the gist of your answer?

9 A. Yes, that is the gist, mm-hmm.

10 If the objective is to ensure the  
11 survival of the stand, and you can certainly judge your  
12 results whether or not you are attaining that objective  
13 without actually knowing the quantified final yield of  
14 that particular harvest.

15 Q. That's fine, thank you. If the  
16 objective is to increase growth and yield, isn't it  
17 necessary to know what the expected yield will be?

18 A. No, it's not necessary, no.

19 Q. Mr. Hynard, at page 73 of your  
20 evidence you indicate that two major objectives of  
21 cleaning treatments include increasing the long-term  
22 growth and yield of conifers.

23 Your evidence just now is that if the  
24 objective is to increase growth and yield, it is not  
25 necessary to know what the expected yield will be.

1           A. Well, it's not necessary to be able  
2           to quantify that exactly, in fact it's not possible,  
3           simply not possible to be able to quantify that exactly  
4           without having gone through an entire rotation.

5           It is possible to know whether -- it is  
6           possible for a decision-maker to judge whether or not a  
7           treatment would be worthwhile on the basis of the  
8           expected results, and if he's looking for survival of a  
9           plantation and the expected result is its survival,  
10          making free to grow status, he can make those decisions  
11          fine.

12          That Exhibit 612, I believe it was that  
13          we were referring to earlier, is an example of how a  
14          decision-maker might determine whether such an  
15          investment was worthwhile in the absence of definitive  
16          quantified yield data.

17          Q. You talk about expected results from  
18          a plantation. The evidence that we have about actual  
19          results of plantations was Panel 4, the SOARS Report?

20          A. Yes, there was evidence in Panel 4.

21          Q. Is that what you are referring to  
22          predominantly or generally?

23          A. No, I wasn't referring to the SOARS  
24          data in particular at all.

25          Q. What data were you referring to?

1           A. I was referring to the objectives of  
2 management in any one stand. If the objective is to  
3 attain free to grow -- for a conifer stand to attain  
4 free to grow status, that would be in the silvicultural  
5 groundrules of that timber management plan. That is...

6           Q. Mr. Hynard, I'm not talking about  
7 theory, I'm talking about results. Where do we have  
8 results about actual plantations; is it not in SOARS?

9           A. Well, we certainly gave result  
10 data -- more up-to-date result data in Panel 11 on  
11 that.

12          Q. That's SOARS 2; isn't it?

13          A. No, no, that is in response to a  
14 Forests for Tomorrow Interrogatory No. 12 I believe in  
15 Panel 11.

16          Q. All right. So that we have it in  
17 Panel 11 in relation to that question, and we may have  
18 it in Panel 4 in relation to SOARS; is that right?

19          A. Yes, and -- your question in Panel 11  
20 was to provide the actual results by silvicultural  
21 harvest system and regeneration method on a variety of  
22 working groups for eight different management units  
23 across the province and we provided you with that data,  
24 including survival assessments, stocking assessments  
25 and free to grow surveys.

1 Q. All right.

2 MR. FREIDIN: Mr. Chairman, of course the  
3 record is going to have to speak for itself.

4 In fact, this witness may not be able to  
5 recount every piece of evidence that every panel has  
6 dealt with in respect to that subject, and it should  
7 come as no surprise when I perhaps refer to that  
8 evidence in final argument.

9 MR. CASTRILLI: Nothing will surprise me  
10 by then.

11 Q. Just so I have your answer on the  
12 issue of expected yield, you say it's not necessary to  
13 quantify or not necessary to quantify exactly. Is it  
14 your testimony that expected yield...

15 MR. FREIDIN: Or possible, he said.

16 MS. MURPHY: Or possible.

17 MR. FREIDIN: It's not necessary or  
18 possible is what he said, Mr. Castrilli. Quote him  
19 accurately, please.

20 MR. CASTRILLI: Thank you for your  
21 assistance, Mr. Freidin.

22 MR. FREIDIN: You are welcome, Mr.  
23 Castrilli.

24 THE CHAIRMAN: Gentlemen, let's move  
25 along.



1 MR. CASTRILLI: Q. Do I take it from  
2 your evidence, Mr. Hynard, that therefore expected  
3 yield is not relevant?

4 MR. HYNARD: A. No, no, you shouldn't  
5 take that at all. Your original question was on the  
6 difficulty that a forest manager would have in making a  
7 tending decision in the absence of quantified data on  
8 the expected yield of that treatment on that site type  
9 at its eventual harvest some perhaps 80 years later.

10 And my evidence is that it's not possible  
11 for him to know, it's not necessary for him to be able  
12 to quantify that in order for him to be able to make  
13 that decision whether to tend or not.

14 I didn't say it wasn't relevant to the  
15 case at all.

16 Q. That's fine are.

17 MRS. KOVEN: Mr. Hynard, it's quite a  
18 differ situation when you look at expected yield on a  
19 plantation than it is when you are looking at a stand  
20 in an area that isn't a plantation.

21 It seems to me that in a plantation you  
22 have much more control obviously over planting and  
23 tending practices and, as well, that the rotation age  
24 is much lower in a plantation; rather than talking  
25 about 80 years, you would be talking about 30 or 40

1 years in terms of the time to take off the first  
2 harvest.

3 MR. HYNARD: Well, there certainly would  
4 be differences between an intensively managed stand and  
5 an unmanaged or a natural stand because there is a  
6 greater degree of control in planting, for example, in  
7 actual spacing the trees out and in providing for their  
8 tending needs.

9 Now, whether that gain takes the form of  
10 higher yield at harvest, which is certainly possible,  
11 or a shorter rotation, certainly not in Ontario in the  
12 order of 30 or 40 years though.

13 I guess one of the difficulties is that  
14 we have never had a full rotation of that kind of  
15 management in the area of the undertaking.

16 MRS. KOVEN: And that hasn't been done in  
17 southern Ontario.

18 MR. HYNARD: Well, yes, it has. There  
19 have been full rotations now of red pine in southern  
20 Ontario and there are yield tables for managed stands  
21 of red pine, yes. So they do exist, but not for any  
22 other situation that I am aware of.

23 MRS. KOVEN: And you are not comfortable  
24 taking that situation and applying it in any way to the  
25 situation we are looking at generally in the area of

1 the undertaking?

2 MR. HYNARD: Well, no, not directly.

3 It's possible to use that kind of information. For  
4 example, if a forester were saying by actually planting  
5 and spacing the trees and tending them and thinning the  
6 stand, how much extra yield might I have to have to  
7 justify that sort of thing.

8 Not being able to look within the area of  
9 the undertaking or his own unit, he might turn to those  
10 red pine tables and say: Well, in southern Ontario when  
11 they did that kind of an approach what kind of yield  
12 gain did they obtain over the unmanaged stands.

13 And then he might reckon whether or not  
14 he could attain that. So he would use it, but only  
15 very indirectly.

16 MRS. KOVEN: I guess in a situation of a  
17 plantation the more important aspect is a higher  
18 guarantee of survival as opposed to the sort of tending  
19 that you can apply after something has been planted or  
20 seeded?

21 MR. HYNARD: Usually in the case of a  
22 plantation the big extra advantage is being able to  
23 place that crop out there on a situation where you  
24 could not normally obtain natural regeneration.

25 But there are other advantages too in

1 controlling spacing and so on, yes.

2 MR. CASTRILLI: Q. Ms. Krishka, as part  
3 if your evidence you introduced Exhibit 628. Could I  
4 ask you to get that document. Do you have it?

5 MS. KRISHKA: A. Yes.

6 Q. And that was a report co-authored by  
7 yourself regarding spruce height and volume growth in  
8 response to 2,4-D aerial release treatments; is that  
9 right?

10 A. Yes.

11 Q. Can I ask you to turn to pages 14 and  
12 15. It's in relation to spruce height. Table 6 is the  
13 pre-treatment total height; is that right?

14 A. Yes, it is.

15 Q. Table 7 is the post-treatment total  
16 height?

17 A. Yes, it is.

18 Q. Looking first at Table 6, under  
19 Snowflake Lake.

20 A. Yes.

21 Q. The control height under intermediate  
22 dominance class?

23 A. Yes.

24 Q. That was 18.9 centimetres mean?

25 A. Yes.



1 Q. And the height of the trees that were  
2 eventually treated, in other words the treatment block,  
3 was 18.6?

4 A. Yes.

5 Q. Turning now to page 15 in Table 7,  
6 the same lake in the same dominance class, this is the  
7 post-treatment situation, control height was 142  
8 centimetres?

9 A. Yes.

10 Q. The post-treatment height was 128  
11 centimetres?

12 A. That's correct.

13 Q. So that the controlled trees which  
14 were taller in Table 6 than the trees that were  
15 eventually treated, were taller still in Table 7 than  
16 the trees that had been treated; is that correct?

17 A. Yes, that's correct.

18 Q. Turning back to Table 6, now looking  
19 at Man Lake, the control height under the all dominance  
20 class was 26.3 centimetres?

21 A. Yes.

22 Q. And the pre-treatment group height  
23 was 21.6 centimetres?

24 A. Yes.

25 Q. Looking now at Table 7 page 15, same

1 lake, same dominance class, the control height was 170  
2 centimetres--

3 A. Yes.

4 Q. --is that correct? And the  
5 post-treatment height was 164 centimetres?

6 A. Yes. I might note that in the paper  
7 it noted that in Man Lake there was some frost damage  
8 in the treated area and, therefore, there was --  
9 generally the trees in the untreated area were taller  
10 than the treated area in the post-treatment measurement  
11 primarily because in the treated area the leaders, the  
12 new growth was damaged due to frost.

13 Q. That was not the case at Snowflake  
14 Lake, was it?

15 A. No, it was not.

16 Q. Is it fair to say that the control  
17 trees that were taller than the trees eventually  
18 treated in Table 6 were taller still in Table 7?

19 A. Where?

20 Q. Snowflake Lake, Man Lake, two  
21 examples I just gave you.

22 A. Well, if you note that the trees are  
23 broken down into dominance classes and the trees in  
24 Snowflake Lake that were growing in open growing  
25 conditions were growing taller than the trees in the

1 control area.

2 The remaining trees which were still  
3 growing under suppressed conditions were generally,  
4 according to this data, shorter or not as tall.

5 Q. Ms. Krishka, we could go through this  
6 for each of these examples you have set out here, but  
7 let me instead just ask you: Looking at those two  
8 tables together, Table 6 and Table 7, would you agree  
9 with me that with the exception of Janet Lake, open  
10 growing dominance class, the tree block that was taller  
11 in Table 6 pre-treatment were the taller tree block in  
12 Table 7?

13 A. No, because if you look at all the  
14 trees in Snowflake Lake where all the trees are  
15 totalled, the treated -- the trees in the treated area  
16 were growing taller than the trees in the control.

17 I would agree with that statement if you  
18 were referring to just Man Lake, and I explained the  
19 reason for that.

20 Q. How is it not true for Snowflake Lake  
21 intermediate class?

22 When we looked at Table 6 the control  
23 height was 18.9 versus the treatment block which was  
24 18.6. When we look at Table 7, the same dominance  
25 class, same lake, the differential is greater for the

1 control over treatment than it was under the  
2 pre-treatment situation in Table 6; isn't that right?

3 A. I'm sorry, could I have the first  
4 part of that question again?

5 Q. Isn't it true that when we look at  
6 Snowflake Lake intermediate dominance class, the  
7 control versus the treatment under Table 6, and we have  
8 a .3 centimetre difference, when we turn to the same  
9 lake, same dominance class in Table 7, we have a  
10 greater differential control over treatment?

11 A. Yes, I would agree with that.

12 Q. So isn't it true -- let me put it  
13 this way: Would you agree that Table 6 and 7 show that  
14 the trees or the tree block that was taller before  
15 treatment was the taller tree block after treatment,  
16 whether or not they were a control or a treatment tree  
17 block?

18 A. I think maybe the --

19 Q. With the exception of Janet Lake open  
20 dominance class?

21 A. I guess I am confused with your use  
22 of the term tree block. If I could just explain that  
23 these dominance classes were defined at the  
24 pre-treatment time.

25 The way -- if you look at -- the trees



1 that were classified as open intermediate and  
2 suppressed in Table 7 in 1986 are the same trees that  
3 are recorded in Table 6 at the pre-treatment state.

4 Now, at the time we didn't know what  
5 their dominance position was prior to treatment, so we  
6 wanted to compare the same trees before and after. So  
7 although they are recorded in the same dominance  
8 classes as they were post-treatment, they may not have  
9 been in those dominance positions at the time prior to  
10 treatment.

11 I hope that hasn't confused things any  
12 more than they are.

13 Q. Let me see if I can clarify by asking  
14 you a further question. Would you agree that the trees  
15 that were taller before were taller after, whether or  
16 not they were sprayed?

17 A. In the case of the trees that were  
18 growing under intermediate or suppressed conditions  
19 after the spray treatment, yes, I would agree, but the  
20 trees which were successfully released and were growing  
21 in open conditions, that would not be the case.

22 You might also note that the greatest  
23 proportion of the trees were actually growing in the  
24 open growing conditions post-treatment which would then  
25 follow that the greater number of trees in the

1 post-treated area -- the treated area post-treatment,  
2 were growing taller than the areas in the untreated  
3 area -- or the trees in the untreated area.

4 Q. As a general proposition, isn't it in  
5 fact true that the trees that were taller before were  
6 taller after, whether or not they were sprayed?

7 A. Yes.

8 Q. Thank you. Let's talk about volume.  
9 Still talking about the same exhibit, we are now  
10 looking at Table 4 which is at page 10. Now, we are  
11 going to look at Snowflake Lake first.

12 A. Yes.

13 Q. The control block mean volume was  
14 smaller than the treatment block mean volume to begin  
15 with; that is to say, before spraying. Is that  
16 correct?

17 A. Yes, that's true.

18 Q. That's the pre-treatment situation in  
19 Table 4; is that right?

20 A. Yes, it is.

21 Q. And then still looking at Table 4,  
22 Janet Lake, would you agree that Table 4 shows that at  
23 this lake as well the control block mean volume was  
24 smaller than the treatment block mean volume to begin  
25 with; that is to say, pre-spraying?

1 A. I'm sorry, didn't you just ask me  
2 that question? Are we referring to Table 5 or Table 4,  
3 I am sorry?

4 Q. No, we are still looking at Table 4--

5 A. Okay.

6 Q. --and Janet Lake?

7 A. Yes, that is correct.

8 Q. Can you confirm for me, Ms. Krishka,  
9 that given the initial significant pre-treatment  
10 differences in the total volume between trees, as we  
11 look at the control and the treatment blocks for  
12 Snowflake and Janet Lake as we have just done, that you  
13 cannot conclude that the post-treatment volume  
14 differences in Table 5 are due solely to the use of  
15 2,4-D?

16 A. Yes, that's correct, and that's  
17 stated in the paper.

18 Q. And given the initial significant  
19 pre-treatment differences in total volume that we see  
20 at Janet Lake and Snowflake Lake, the differences in  
21 the subsequent volume increment observed for those two  
22 areas may only partially be attributable to the use of  
23 2,4-D?

24 A. Yes, that's correct. That's also  
25 stated in the paper.

1 Q. Would it be fair to say that you do  
2 not know the effect of the 2,4-D treatment in light of  
3 those confounding factors?

4 A. In the case of Snowflake and Janet  
5 Lake, as you have stated, we don't know exactly how  
6 much of that increase is attributable to the 2,4-D  
7 treatment.

8 Q. And I gather it is fair to say that  
9 you are unable to confirm whether the release response  
10 was solely due to -- excuse me, the response was solely  
11 due to release or whether the trees on the treatment  
12 block were simply in a preferential growing environment  
13 prior to release; isn't that right?

14 A. That's correct.

15 Q. And I gather it is -- confirm this  
16 for me if you might, that on many of these treatment  
17 blocks you started with larger trees and a larger  
18 starting volume in comparison to the control block?

19 A. Well, you have to appreciate that  
20 this study was a random sample in that the methodology  
21 used was such that transects were located randomly,  
22 plots were located randomly on the transects, and trees  
23 were selected randomly within the plots. So we didn't  
24 purposely select larger trees.

25 As it happened, yes, you are right, the



1 trees that were selected had a greater volume in the  
2 treated area.

3 Q. Can you confirm for me that the  
4 purpose of early -- or one of the purposes of early  
5 tending operations is to ensure the survival or success  
6 of a newly regenerating stand?

7 A. Yes.

8 Q. And is it MNR's position that  
9 competing vegetation can interfere with crop trees  
10 primarily through competition for resources needed for  
11 tree survival and growth?

12 A. Yes.

13 Q. Could you advise the Board where in  
14 Exhibit 628 you indicate the effect of the 2,4-D aerial  
15 release program on the survival of the seedlings  
16 planted?

17 A. We -- well, I will find the spot. On  
18 page 9, where we showed the graphs for relative  
19 dominance, there is an N value and that N represents  
20 the number of trees sampled and that was a sample of  
21 all the conifer trees or spruce trees that appeared on  
22 the plots, and that essentially provided us with a  
23 relative -- with a stocking value.

24 We had determined in our analysis that  
25 there was no difference in stocking on the treated

1 sites compared to the control sites.

2 Q. Is that table about survival of the  
3 seedlings planted?

4 A. This particular table is not, it is  
5 just the location where you can see the numbers, and I  
6 think there is reference in the discussion -- yes, on  
7 page 17, under Discussions and Conclusions, the first  
8 paragraph refers to spruce tree density and indicates  
9 that minimal differences were found in this particular  
10 case.

11 Q. Where is that documented in the body  
12 of the report or the exhibit?

13 A. It wasn't -- at an earlier draft we  
14 actually did include all the values for stocking and  
15 through various reviews and changes in the  
16 documentation the actual numbers weren't included, but  
17 it was reported there under Discussions and  
18 Conclusions.

19 Q. But as far as the four corners of  
20 Exhibit 628 are concerned, there is no documentation  
21 with respect to survival of the seedlings planted; is  
22 that correct?

23 A. Well, we reported that we found  
24 minimal differences. The actual numbers are not there.

25 THE CHAIRMAN: The supporting tables

1 aren't there, Mr. Castrilli, but she is indicating that  
2 within the body of the report there are certain stated  
3 conclusions.

4 MR. CASSIDY: Q. Ms. Krishka, would  
5 there be any --

6 MS. KRISHKA: A. I'm sorry, I apologize.  
7 On page 4 in Table 1, the second column from the right  
8 under Density, which is stems per hectare, it is still  
9 in the -- I'm sorry, we have been through a number of  
10 drafts and I didn't recall it was still in here.

11 Q. So Table 1 is what you rely on for  
12 your conclusion -- is what is in Exhibit 628 with  
13 respect to survival of seedlings; is that correct?

14 A. What it tells you is what the density  
15 is after treatment. It doesn't exactly record survival  
16 because we didn't actually record the actual number of  
17 stems that occur -- that were on the site prior to  
18 treatment.

19 What we do have a record of is the number  
20 of stems that were planted per hectare at the time the  
21 plantation was planted. Therefore, you can't actually  
22 say that's survival, but what it does show is the  
23 actual density after treatment.

24 Q. Fine. It shows density after  
25 treatment, not survival after treatment; is that

1 correct?

2 A. That's correct.

3 Q. That's fine, thank you.

4 MR. HYNARD: A. I believe there was some  
5 evidence on that in cross-examination resulting --  
6 contained within the Provincial Auditor's Report tying  
7 together--

8 Q. Excuse me, Mr. Hynard.

9 A. --plantation survival and tending.

10 Q. Mr. Hynard, we are talking about  
11 Exhibit 628. Do you have anything to add with respect  
12 to Exhibit 628?

13 A. No, sir.

14 Q. Thank you.

15 MR. FREIDIN: You wanted the information  
16 with regard to the subject matter.

17 MR. CASTRILLI: Mr. Freidin, you can deal  
18 with in it re-examination if you like.

19 MR. FREIDIN: Thank you, I will.

20 MR. CASTRILLI: Q. Ms. Krishka, you also  
21 submitted in evidence Exhibit 629. Sorry, do you have  
22 that exhibit before you?

23 MS. KRISHKA: A. Yes.

24 Q. And this was a, would it be fair to  
25 call it, a parallel study to the one that is contained



1 in Exhibit 628 but this time in relation to jack pine?

2 A. It's very similar.

3 Q. Can you advise the Board where in  
4 Exhibit 629 there is an indication of an increase in  
5 survival of the sprayed area over the control area?

6 A. I didn't look at survival in this  
7 particular study, and I would have to find the spot,  
8 but I have noted in the paper that as is very common in  
9 jack pine stands, your problem isn't survival and often  
10 jack pine stands are overstocked.

11 Q. Can I ask you to turn to page 15 of  
12 this exhibit?

13 A. Page...?

14 Q. 15. We will be looking at the only  
15 thing on the page, Figure 4.

16 A. Yes.

17 Q. And looking at the entire table  
18 regardless of dominance class, would you agree there is  
19 little difference in the amount of dominance of jack  
20 pine in the treatment and control blocks?

21 A. Yes, that's correct.

22 Q. Would it be fair to conclude that the  
23 spraying of 2,4-D did not release the pine?

24 A. No, it would not. I think if you  
25 continued with the results of that study you would

1 find, and I had explained to some degree in my oral  
2 evidence, that jack pine may not respond in height.

3 In fact, the Chairman asked me a question  
4 about why that would occur and I gave him the example  
5 that related to needles and becoming shade tolerant.

6 In any case, I won't go back into that,  
7 but what we did find is there was not a big difference  
8 in height, there was a big difference in volume and  
9 that's because height when released may continue --  
10 under suppression may continue to grow in height but  
11 will not grow much in diameter.

12 So it is not surprising that the trees  
13 that were suppressed were as tall as the trees that  
14 were open.

15 Q. Continuing with page 15 at Figure 4,  
16 would it be fair to say that the difference may be  
17 attributable to the growing condition of the jack pine  
18 prior to release?

19 THE CHAIRMAN: The difference in what,  
20 the difference in height or the difference in volume?

21 MR. CASTRILLI: What is referred to in --  
22 well, the entirety really of this exhibit.

23 MS. MURPHY: I thought the reference was  
24 to compare volumes.

25 MR. CASTRILLI: Sorry, volume.

1 MS. KRISHKA: I'm sorry, would you please  
2 repeat that question?

3 MR. CASTRILLI: Q. Would you agree that  
4 the difference may be attributable to the growing  
5 condition of the jack pine prior to release?

6 MR. FREIDIN: Difference in volume?

7 MR. CASTRILLI: Yes.

8 MS. KRISHKA: Well, if you look at page  
9 10, Figures 2 and 3, it shows the volume in the  
10 dominance classes prior to treatment and then after  
11 treatment.

12 Figure 2, the top graph, shows the volume  
13 by dominance class after treatment; the lower figure,  
14 Figure 3, shows volume by dominance class prior to  
15 treatment, and if you look at that you can see that  
16 other than in the suppressed area there was little  
17 difference in volume prior to treatment.

18 And, in fact, in the suppressed area the  
19 trees -- the treated trees prior to treatment were  
20 growing lower; they had lower volume than the trees in  
21 the untreated area.

22 MR. CASTRILLI: Q. Can I ask you to turn  
23 to page 18 of this exhibit. We are now looking at the  
24 last paragraph on that page. Do you have it?

25 MS. KRISHKA: A. Yes.

1 Q. The third line down beginning with  
2 the word: "However..."

3 "...there are also some contradictions in  
4 the study results. Average stem volume  
5 for jack pine post-treatment was greater  
6 on the treatment block while average  
7 height was lower."

8 A. That's correct.

9 Q. "There were also more open growing  
10 jack pine on the control block but the  
11 competing vegetation was taller and jack  
12 pine stem volume was lower. These  
13 results may be attributable to the  
14 growing conditions of the jack pine prior  
15 to release."

16 Would you agree that without knowing the  
17 initial conditions of the site you cannot draw any  
18 conclusions as to the result of these experiments?

19 A. No, I do not agree with that.

20 Q. Would you agree that on pages 4 and 5  
21 of this exhibit you note a variety of site conditions  
22 treated in a similar manner?

23 A. Could you repeat that, please?

24 Q. We are looking at pages 4 and 5 of  
25 Exhibit 629. Would you agree that on that page you



1 note a variety of site conditions treated in a similar  
2 manner?

3 A. Yes, although there is a variety of  
4 site conditions, but the variety would be of the sort  
5 you would normally incur under normal field conditions.  
6 Forest stands are generally not homogenous.

7 Q. Well, in this exhibit you have not  
8 really shown then that the sites or the conditions on  
9 the sites were the same at the time of treatment; is  
10 that right?

11 A. I don't see where it says that. What  
12 are you looking at?

13 Q. I am looking at pages 4 and 5.

14 A. Can you be more specific?

15 Q. Have you shown sites or the  
16 conditions on the sites as being the same at the time  
17 of treatment?

18 A. When we located the treatment in the  
19 control areas, if that's what you are -- are you  
20 questioning whether the untreated area was comparable  
21 to the treated area?

22 Q. That's one aspect of it, but let me  
23 just restate the question so I understand the answer I  
24 will be getting.

25 Have you shown that the sites or the

1 conditions on the sites were the same at the time of  
2 treatment?

3 A. Well, it is clear to me that, yes, we  
4 have shown that. We did a fairly intensive survey of  
5 both the treated and the untreated areas, we stratified  
6 them, we did soil samples and identified the FEC soil  
7 types.

8 There was a range of soil types within  
9 both the treated and the untreated area and it was  
10 believed that they were comparable.

11 Q. There was a range of soil types in  
12 the treated and the untreated area?

13 A. Within a narrow range, and what is  
14 interpreted in FEC as to being two different soil types  
15 are very fine distinctions, it is not implying gross  
16 differences.

17 If there were gross differences, we would  
18 not have accepted the untreated area as being an  
19 acceptable control area. We have criteria that we use  
20 for selecting what would be an acceptable control area.

21 Q. And what we see on pages 4 and 5 meet  
22 the criteria; is that your testimony?

23 A. Yes. I might refer you to page 23 to  
24 the Appendix 2. It is titled: Secondary Field  
25 Criteria for Selecting Study Areas. There is a lengthy

1 list there of the criteria that must be met for an area  
2 to be acceptable as a control area.

3 Q. Sorry, it is at page 22?

4 A. Yes -- 23.

5 Q. Thank you. Mr. Campbell, could you  
6 advise the Board what per cent survival of conifers you  
7 would expect if no chemical release work were carried  
8 out?

9 DR. CAMPBELL: A. That's going to be  
10 completely dependent upon the site, the particular  
11 species of conifer planted and the type of stock, a  
12 number of other factors.

13 Q. Do you have a -- is there a  
14 reasonable range in such a circumstance?

15 A. I don't know. Mr. Galloway or Mr.  
16 Hynard, maybe can add.

17 MR. GALLOWAY: A. No, I don't think  
18 there is a reasonable range because of the differences  
19 between the species. So a ballpark figure, average  
20 success with no treatment, there would not be a range  
21 that would be applicable to that.

22 Q. Now, we are talking about, or I am  
23 talking about naturally regenerated areas.  
24 Approximately how many hectares of a naturally  
25 regenerated areas were treated with chemicals for site

1 preparation or tending purposes, and I will accept  
2 ballpark figures if you have them?

3 A. I have no idea. Do you have any  
4 idea?

5 Q. In the absence of figures that you  
6 feel confident about putting on the record, could you  
7 simply tell me: Would you expect the majority of such  
8 unregenerated lands to be treated solely for site  
9 preparation purposes or for tending?

10 A. No, normally the natural regenerated  
11 areas, there would be a lower percentage of those areas  
12 would have been treated for tending or site  
13 preparation, but there would be some areas within the  
14 natural regeneration that had been site prepared for  
15 natural as well as there would be some areas that would  
16 have been tended.

17 Q. Would you expect generally that in  
18 such areas you would be doing more site preparation  
19 work than tending work, in general, across the area of  
20 the undertaking?

21 A. In general, it is not an uncommon  
22 prescription to have a site preparation to promote the  
23 natural regeneration, that's correct.

24 Q. Thank you. Are you familiar with the  
25 1989 Eleven-Year Summary of Silvicultural Statistics



1 for Canada?

2 A. Yes, I have a copy of that.

3 MS. MURPHY: We have a copy of the pages  
4 that was provided to us by Mr. Castrilli. I don't have  
5 the entire document. It was certain pages provided  
6 by...

7 MR. CASTRILLI: That's right. What I am  
8 about to suggest should be made the next exhibit is an  
9 excerpt from that report.

10 THE CHAIRMAN: Very well. Exhibit 677.

11 MR. CASTRILLI: (handed)

12 THE CHAIRMAN: Thank you.

13 ---EXHIBIT NO. 677: Excerpt from report entitled:  
14 1989 Eleven-Year Summary of  
15 Silvicultural Statistics for  
Canada.

16 MR. CASTRILLI: Q. Mr. Galloway, we are  
17 looking at Table 5, page 16 of the excerpt that is now  
18 Exhibit 677.

19 MR. GALLOWAY: A. Yes.

20 Q. The title of the table is:  
21 Percentage of Harvested Lands Estimated to Become  
22 Satisfactorily Stocked to Provincial Standards Through  
23 Natural Regeneration for the Period 83-84 to 85-86.  
24 And it is broken down by province, and it is broken  
25 down by spruce and pine separately, spruce and pine

1 together, and then a success rate for spruce and pine.

2 Would you agree with me that page 16 of  
3 this exhibit indicates that Ontario expects a success  
4 rate of 50 per cent and 46 per cent respectively for  
5 spruce and pine that regenerates naturally?

6 A. Yes, that's what this table says.

7 Q. If these success rates for natural  
8 regeneration could be achieved -- I'm sorry, to be fair  
9 I should refer you and the Board to the one paragraph  
10 description that occurs with respect to this table and  
11 constitutes page 12 of the exhibit.

12 We are looking at the third full  
13 paragraph on the right-hand side of the page, and the  
14 author indicates that:

15 "The data in Table 5 are broad averages  
16 encompassing natural regeneration with  
17 and without site preparation and several  
18 species of spruce and pine within each  
19 group."

20 The last sentence in that paragraph I  
21 don't think really applies in the circumstances.

22 Now, turning back to page 16, Mr.  
23 Galloway, if these success rates of 50 per cent and 46  
24 per cent respectively for natural regeneration can be  
25 achieved with what appears to be little or no herbicide

1 release spraying, would you agree with me that it would  
2 not be necessary to plant and spray to achieve a  
3 minimum stocking of 40 per cent which is what I believe  
4 the minimum stocking standards that were filed in Panel  
5 4 speak to?

6 MR. GALLOWAY: A. Yes, on certain sites,  
7 that is true. And this table says satisfactorily  
8 stocked through natural regeneration, so that is where  
9 a natural regeneration treatment has been used and that  
10 indicates to me that that is where the expected result  
11 was success in that order and that natural regeneration  
12 was used as the treatment on those sites precisely  
13 because of that expected result.

14 Q. Thank you. Now, I think the next  
15 exhibit that I was going to refer to is one that was  
16 introduced by Dr. Campbell.

17 Exhibit 619, Dr. Campbell, I believe was  
18 a series of overheads you had produced for the purposes  
19 of assisting the Board during your  
20 examination-in-chief.

21 DR. CAMPBELL: A. That's correct.

22 Q. And we are looking at what would be  
23 the fourth from the last page in that exhibit.

24 MR. CASTRILLI: Mr. Chairman, for  
25 convenience sake and reference sake, I believe portions

1 of this page are also reproduced on page 237 of Exhibit  
2 603. So you can look at it and follow the discussion  
3 in either place.

4 MR. FREIDIN: What is the heading on the  
5 page again, Mr. Castrilli?

6 MR. CASTRILLI: Ontario Herbicide  
7 Statistics Forest Versus Other Users, Part 1.

8 MR. FREIDIN: Thank you.

9 MR. CASTRILLI: Q. Dr. Campbell, at that  
10 page you note that the percentage of production forest  
11 treated with herbicides equals .2 -- two tenths of one  
12 per cent annually; is that right?

13 DR. CAMPBELL: A. That's correct.

14 Q. Would you agree that the annual  
15 cut-over on Crown lands is approximately 200,000  
16 hectares.

17 A. That's correct.

18 Q. So that in relation to the 200,000  
19 hectares per year that are cut, spraying of 73,000 plus  
20 hectares constitutes roughly the spraying of 35 per  
21 cent of the annual cut-over on Crown forest land?

22 A. That's approximately correct.

23 MRS. KOVEN: Excuse me, Mr. Castrilli,  
24 could you repeat what per cent that is.

25 MR. CASTRILLI: Approximately 35 per



1 cent. Simply 73,000 plus divided by 200,000.

2 Q. Would you agree that spraying one  
3 third of the cut-over every year is significant?

4 DR. CAMPBELL: A. Yes.

5 Q. Continuing with Exhibit 619, we are  
6 now looking at the next to last page of that exhibit.  
7 The heading would be: Ontario Herbicides Statistics,  
8 Forestry versus Other Users, Part 3. Do you have that  
9 page?

10 A. Yes.

11 Q. And what you are comparing there is  
12 the quantity of 2,4-D purchased by housholders in 1986  
13 approximately 97,000 kilograms, to the quantity of  
14 2,4-D used for forestry in 1986; is that right?

15 A. That's correct.

16 Q. Is that comparison meant to be -- I  
17 take it that that comparison is not meant to be for the  
18 area of the undertaking, but is meant to be for all of  
19 Ontario; is that right, or correct me if I'm wrong?

20 A. That's correct. Certainly the  
21 forestry use, there is a certain amount of that in  
22 southern Ontario, which would be outside of the area of  
23 the undertaking.

24 Q. So those numbers include -- so those  
25 numbers are for all of Ontario and not the area of the

1       undertaking?

2                   A.   That's correct, but by and large a  
3       very high percentage of that would be within the area  
4       of the undertaking.

5                   Q.   Is most household use of 2,4-D in the  
6       area of the undertaking?

7                   A.   No, most of it would be in southern  
8       Ontario.

9                   Q.   So what you are really comparing in  
10      that exhibit is urban use of 2,4-D by householders  
11      outside of the area of the undertaking to 2,4-D use  
12      predominantly within the area of the undertaking; is  
13      that right?

14                  A.   That's correct, but the purpose of  
15      the table was simply to demonstrate that the use of  
16      2,4-D by forestry was not a unique and different  
17      situation. It and the previous tables pointed out that  
18      forestry use is -- rather, that there are a number of  
19      other uses which are as much, if not more, than the  
20      forestry use.

21                  Q.   Do householders aeriually spray their  
22      homes?

23                  A.   I'm sorry?

24                  Q.   Do householders aeriually spray their  
25      homes?

1 A. No, they do not.

2 Q. Now, looking at that table, Dr.  
3 Campbell, as I recall the statistics that were  
4 introduced in this panel, 2,4-D use in forestry and  
5 glyphosate use in forestry are roughly equal in terms  
6 of hectares?

7 A. That's correct.

8 Q. Something like 27,000 for 2,4-D and  
9 29,000 for glyphosate or vice versa? Is that the order  
10 of magnitude we are talking about?

11 A. Let's just check. From Table 4 we  
12 have the total 2,4-D was 35,000 hectares and the total  
13 glyphosate was 31,000.

14 Q. Roughly equal for the purposes of our  
15 discussion?

16 A. Fair enough.

17 Q. I didn't notice in Exhibit 619,  
18 perhaps it's elsewhere, is there anything in your  
19 evidence regarding the amount of glyphosate in  
20 kilograms used in forestry?

21 A. No, there is not because I think, as  
22 I pointed out, we don't normally collect our statistics  
23 on the basis of the quantity, rather we do it on the  
24 basis of the area treated, one can make an estimate of  
25 it.

1 Q. Sorry, I was hoping you were about  
2 to. Were you about to, in terms of quantity?

3 Or for the sake of argument, Dr.  
4 Campbell, without forcing you to run through what looks  
5 like a very high mountain of paper on your desk, are we  
6 looking at roughly equal at numbers in terms of  
7 quantities for glyphosate as we are for 2,4-D?

8 A. We can take probably the maximum. We  
9 have the 31,000 hectares that were treated, the maximum  
10 rate which would be used would be 2 kilograms, so the  
11 total amount used would be in the neighbourhood of up  
12 to 62,000 kilograms.

13 Q. Okay. I will accept those as rough  
14 numbers. I'm not trying to pin you down specifically  
15 on those. Do you have any idea of what quantity of  
16 household use there is for glyphosate?

17 A. The household use of glyphosate would  
18 be relatively small. I have no estimate of it at all  
19 and there has not been a survey.

20 The reason we were able to obtain the  
21 2,4-D information is because a specific survey was done  
22 in 1986.

23 Q. So that if we were to reconstruct  
24 this page of Exhibit 619 and added glyphosate under  
25 both columns - again I don't wish to pin you down to



1 specific numbers - would we not in fact be looking at,  
2 generally speaking, much larger numbers for 2,4-D and  
3 glyphosate use in forestry than we would be for 2,4-D  
4 and glyphosate purchased by householders?

5 A. You mean if you add the two together?

6 Q. Yes?

7 A. Undoubtedly.

8 Q. Mr. Galloway, we were -- I guess we  
9 were not but we will now. Page 158 of your evidence,  
10 which is Exhibit 603A.

11 MR. GALLOWAY: A. Yes, I have that.

12 Q. Just looking at that page under the  
13 heading of Effectiveness, you indicate that the cost  
14 per hectare with aerial spraying for 2,4-D is \$40 a  
15 hectare and for glyphosate is \$135 per hectare.

16 I'm just wondering if you can clarify  
17 this for me - it wasn't clear from the evidence and I  
18 just need to sort this out for my notes - that the  
19 reason for the differential in cost between 2,4-D and  
20 glyphosate is due in part to the fact that glyphosate  
21 is still on patent; is that right, but may soon come  
22 off patent.

23 A. That's one of the reasons.

24 Glyphosate at present costs more for the herbicide than  
25 2,4-D does, that's correct. And Mr. Campbell mentioned

1 that it is coming off the patent and that may change.

2 Q. So generally you would expect the  
3 cost per hectare of glyphosate to drop down to a level  
4 somewhat closer to 2,4-D?

5 A. Yes, I would expect that.

6 Q. All other things being equal?

7 A. That's correct.

8 Q. And would it be fair to say that the  
9 cost -- let's just look at the \$40 per hectare figure  
10 since it's the lower one. That cost per hectare is  
11 comprised of the cost of the herbicide product sprayed  
12 at a particular application rate?

13 A. Yes, that is the -- within the rates,  
14 that is the aerial application rate plus the cost of  
15 the herbicide.

16 Q. I gather there is more than one  
17 application rate; is that correct?

18 A. Yes, there's a range as prescribed by  
19 the label and with the registration of that product.

20 Q. So that depending on the application  
21 rate in any particular spray operation, you might have  
22 a higher cost per hectare; is that correct? In other  
23 words, there is probably a range of costs per hectare  
24 as opposed to simply one number; is that right?

25 A. Correct.

1 Q. Okay.

2 A. There would also be a range in the  
3 cost of the application rate because it's determined by  
4 the size of the blocks, distance to blocks.

5 Q. That's fine, thank you.

6 Mr. Iskra, you showed us a number of  
7 slides -- I'm sorry, let me go back to Mr. Galloway for  
8 a moment. I believe you indicated that the cost per  
9 hectare is the particular application rate plus the  
10 cost of the product; is that right?

11 MR. GALLOWAY: A. That's correct.

12 Q. Fine, thank you. Mr. Iskra you  
13 showed us a number of slides - I don't wish to ask you  
14 to show them again - but this is in relation to the  
15 issue of the aerial operations MNR engages in.

16 Can you confirm for me that not included  
17 in the \$40 per hectare cost of aerial spraying 2,4-D,  
18 for the sake of argument, is the cost of equipment for  
19 handling, mixing and loading aircraft with herbicides?

20 MR. ISKRA: A. What I can confirm for  
21 you, our costs of operations at the district is  
22 roughly -- for herbicides is probably about 30 to \$35 a  
23 hectare and that is without the costs of chemical.  
24 That involves staff, equipment, everything you need.

25 Q. So the cost of equipment for

1 handling, mixing and loading aircraft with herbicides  
2 is not included in the \$40 per hectare?

3 A. No, it isn't.

4 Q. Thank you. And the cost of fueling  
5 equipment for the aircraft, that is not included in \$40  
6 per hectare; is it?

7 A. That is part of that 30 to 35.

8 Q. Okay. And the cost of ground support  
9 equipment such as vehicles, fire extinguishers, first  
10 aid equipment and personal washing facilities, not  
11 included in the \$0 per hectare; is that right?

12 A. Part of the 30 to 35.

13 Q. Part of the 30 to 35. And the cost  
14 of construction and maintenance of tank farms to house  
15 chemicals, not included in the \$40 per hectare; is that  
16 right?

17 A. Now, that is insecticide when we are  
18 using tank farms. That -- application costs are  
19 significantly lower and it's just a per hectare basis  
20 significantly lower. I think ours were in the  
21 neighbourhood of about \$20 per hectare.

22 Q. Sorry, you don't use tank farms for  
23 herbicides, only insecticides?

24 A. Well, it's just the amount of  
25 pesticides to handle. You don't need the amount of --



1 to treat 27,500 hectares you need a lot more pesticide  
2 than you would for insecticides comparatively, to treat  
3 a normal project, we would have -- reaches about 600 to  
4 a thousand hectares.

5 So those little mixing units that I  
6 showed on the slides, they are more apt to be used for  
7 a herbicide project as opposed to the tank farm.

8 Q. So the mixing units, are they  
9 included in the \$0 per hectare or are they included in  
10 the other 30 to 35?

11 A. No. Everything operationally is  
12 included in that cost, 30 to 35. It could vary from  
13 district to district depending on proximity to the  
14 blocks.

15 MR. GALLOWAY: A. Mr. Castrilli, the  
16 numbers that Mr. Iskra is saying are for his district  
17 and he's correct and the number we use is an average  
18 and those numbers do include the cost, that is based on  
19 a contracted application rate including that equipment  
20 and plus the herbicide.

21 For example, the 2,4-D herbicide was  
22 roughly \$15 per hectare cost, and on the whole province  
23 in '86 the application cost including everything else  
24 was in that 20 to \$25 per hectare and it is an average  
25 and it does go up and down depending on the other items

1 we mentioned.

2 MR. BUSS: A. Our costs aside from that  
3 30 to \$35 for 2,4-D would bump it up probably another  
4 \$15 in that particular district.

5 Q. Cost of airport construction and  
6 maintenance. Is that part of the \$40 per hectare cost?

7 MR. ISKRA: A. No, that cost would not  
8 show up.

9 THE CHAIRMAN: Is that specific airstrips  
10 for the use of applying the herbicides and pesticides.  
11 Certainly you wouldn't figure in the use of a normally  
12 federally licensed airstrip; would you?

13 MR. ISKRA: No.

14 MR. GALLOWAY: No, that's right. And in  
15 most cases there is a limited cost for the construction  
16 of airstrips. It can be a significant cost depending  
17 on what's available and then it would be used for more  
18 than one year. So depending on the size of the program  
19 in an area, the cost per hectare may be quite a bit or  
20 it may be quite low as well.

21 THE CHAIRMAN: And would it be used for  
22 more than one purpose, the airstrips, or just the  
23 application of pesticides and herbicides?

24 MR. GALLOWAY: If it was one like Mr.  
25 Iskra showed, an airport we are using, we use for more

1 than one thing. The airstrip is constructed  
2 specifically for it would be for herbicides and  
3 insecticides programs specifically.

4 MR. ISKRA: I was involved in a 1986  
5 project in Red Lake where an airstrip was built and it  
6 was multi-purpose uses. There is a permanent logging  
7 camp established there and it's regularly a fire  
8 operations base. So it's used fairly frequently.

9 MR. CASTRILLI: Q. Have you built  
10 airports or airstrips for herbicide use predominantly?

11 MR. ISKRA: A. I really can't speak for  
12 the province on that.

13 MR. GALLOWAY: A. Generally we have --  
14 there has been airstrip construction for herbicide use  
15 and insecticide use too.

16 Q. Thank you. Are the wages of grounds  
17 crew, security staff, herbicide mixers, loaders and  
18 handlers included in the \$40 per hectare cost?

19 A. Yes, that was part of the contract.  
20 The salaries that might not be in there was for  
21 instance, myself, if I was going to be on an area, what  
22 we call permanent staff and using, then it would not  
23 show up in the project cost. That would be similar  
24 whether it was industry or MNR project.

25 Q. Cost of wages of pilots, are they

1 included in the \$40 per hectare cost?

2 A. Yes.

3 Q. The arrangements MNR makes with  
4 aerial sprayers, these are normally private operators;  
5 aren't they, or can they also include Ministry owned  
6 aircraft?

7 A. Perhaps Mr. Nicholson would like to  
8 refer to that in his...

9 MR. NICHOLSON: A. All of the  
10 arrangements are made on a contractual basis with firms  
11 like my own and Natural Resources or an FMA holder.

12 Q. Are the costs of contractual  
13 arrangements for aerial spraying included in the \$40  
14 per hectare cost?

15 A. You mean the general administration  
16 of executing the contract?

17 Q. The cost of the contract?

18 MR. GALLOWAY: A. No. The cost of  
19 getting -- drawing the contract together, putting it  
20 together in the off-season, that type of work. It's  
21 not included in the...

22 Q. The value of the contract?

23 A. Yes, that is included in the cost.

24 Q. Now, Mr. Iskra, as I recall from your  
25 slides you also noted or showed us calibration



1 equipment for feeding the aircraft with herbicides. Do  
2 you recall those slides?

3 MR. ISKRA: A. Yes, I do.

4 Q. Would the acquisition and maintenance  
5 of such equipment be included in the \$40 per hectare  
6 cost?

7 MR. ISKRA: A. I would say not because  
8 there is not much to a pail and a stopwatch and we use  
9 it year in, year out.

10 Q. I don't recall the slide with the  
11 pail and the stopwatch, I recall a slide with a machine  
12 for calibrating what you were feeding into the  
13 aircraft.

14 A. Okay. When the aircraft arrives on  
15 site, the calibration is part of the contract, so that  
16 is all taken in.

17 I misunderstood your question. I thought  
18 you meant calibration equipment. Calibration is just  
19 volume per area and time, so it's a mathematical  
20 calibration and an adjustment on the aircraft.

21 Q. Well, the equipment, whose equipment  
22 is it?

23 MR. NICHOLSON: A. It may be Ministry of  
24 Natural Resources or it may be our own as the  
25 contractor and, as Ed has said, it's usually low

1 technology equipment, something like pails, pumps  
2 nothing that is very capital intensive.

3 MR. CHURCHER: A. Mr. Castrilli there  
4 was a slide of a meter that meters out the amount of  
5 pesticide that is put in the plane. Is that the slide  
6 that you were referring to?

7 Q. Yes. I presumed it was in relation  
8 to herbicides as well?

9 A. Yes, it is, I believe.

10 MR. ISKRA: A. Yes, that is part of the  
11 pesticide mixing unit.

12 Q. Sorry. Then is the cost of that  
13 equipment included in the \$40 per hectare cost?

14 MR. NICHOLSON: A. Yes, the cost of that  
15 would be amortized over several different programs.

16 Some of that material, that equipment  
17 would be owned by Natural Resources or a contractor  
18 such as ourselves. Some of that equipment was  
19 purchased for the forest insect spraying programs from  
20 '85 to '87 and is used for all programs herbicides and  
21 insecticides.

22 So those costs have been amortized over  
23 whatever length of time that is and over all of those  
24 programs.

25 MR. CASTRILLI: Mr. Chairman, I was just

1 wondering when you were intending to break for the noon  
2 day?

3 THE CHAIRMAN: How long do you have to  
4 go?

5 MR. CASTRILLI: It may well be  
6 appropriate to break now and I might be able to shorten  
7 this up a bit and probably not go very long after the  
8 luncheon break.

9 THE CHAIRMAN: Very well. 1:30.

10 Thank you.

11 ---Luncheon recess taken at 12:20 p.m.

12 ---On resuming at 1:35 p.m.

13 THE CHAIRMAN: Thank you. Be seated,  
14 please.

15 MR. CASTRILLI: Mr. Chairman, I think  
16 there is one witness who is not here.

17 MR. MARTEL: He escaped.

18 MR. CASTRILLI: I have forgotten who it  
19 is.

20 THE CHAIRMAN: He is conferring with his  
21 lawyer.

22 Mr. Hynard; isn't it?

23 MR. CASTRILLI: Yes.

24 THE CHAIRMAN: That's right.

25 MR. MARTEL: He's had enough.

1 MS. MURPHY: I'll see if I can scare him  
2 up.

3 MR. FREIDIN: Mr. Hynard has taken on a  
4 new role, Mr. Castrilli.

5 THE CHAIRMAN: I hope we made it clear  
6 that it was 1:30 rather than two. Maybe he thought it  
7 was two o'clock to come back.

8 MR. FREIDIN: I can't speak to him, Mr.  
9 Chairman. Here he is.

10 MR. CASTRILLI: Welcome back, Mr. Hynard.

11 Q. If we could just continue with the  
12 discussion of costs, and for purposes of this  
13 discussion I have been referring in the main to Exhibit  
14 641. Do you have that handy?

15 MR. FREIDIN: Which exhibit?

16 MR. CASTRILLI: Exhibit 641, Vic, that's  
17 the one you are holding.

18 Q. Mr. Iskra, that is an exhibit that  
19 was introduced during your testimony; isn't that right,  
20 so I should be directing some of these questions to  
21 you?

22 MR. ISKRA: A. Yes, I could answer some.

23 Q. Fine. Just looking at page 8, the  
24 heading: On-Site Communications, is the cost of  
25 communication with the public about aerial spraying



1 projects included in the \$40 per hectare cost we were  
2 speaking of before the break?

3 MR. ISKRA: A. I would expect the media  
4 notices would be. The mail-out list -- what we would  
5 do is, in preparation for the project, is give three  
6 people for one week cost added on to our costs, and it  
7 would probably take us the better part of the day to  
8 put out the notices. That's at our most efficient  
9 level when everything is in on the computer.

10 Q. I'm sorry, I'm not clear in your  
11 answer in relation to my question. Is there some part  
12 of that exercise that's not caught by the \$40 per  
13 hectare cost?

14 A. I can only speak to the one specific  
15 project. I would expect there is a fair bit of the  
16 planning part of it that's not included, and what I am  
17 saying there is, when we do the values mapping, as the  
18 project description is circulated, that maybe the time  
19 for that is not coded to that particular project, that  
20 type of stuff.

21 Q. All right, that's fine. The next  
22 page, page 9, down at the bottom of the page you refer  
23 to project wind-up. Is that included in the \$40 per  
24 hectare cost?

25 A. Yes, it is. What it says there, the

1 equipment must be given appropriate maintenance and  
2 storage. It would take about a day to fill your metres  
3 and that with either a diluant or some sort of  
4 anti-freeze for winter storage.

5 Disposal of rinsates, that's done during  
6 the actual project itself. You have to have the  
7 aircraft still there, so that's written into the  
8 contract, and the containers are either -- in our case,  
9 we deliver these containers to the tree nursery and  
10 they are picked up by the company or stored there or  
11 disposed of as per MOE guidelines.

12 Q. And the heading: Recordkeeping, is  
13 that included in the \$40 per hectare cost?

14 A. Yes, yes. It does -- most of the  
15 information is completed during the spray operations.  
16 In the herbicide projects, the central control or radio  
17 operator would fill all those records. As mentioned in  
18 my evidence, they would fill those records during the  
19 project and the actual final cost would probably --  
20 would take half a day to a day just to wind up and that  
21 includes the information sent to MOE upon completion of  
22 the project, the project report.

23 Q. Mr. Iskra, I gather you work at a  
24 different district and have operated out of a different  
25 district from Mr. Galloway; is that correct?

1 A. Yes.

2 Q. Could we expect a differential in  
3 costs per hectare for aerial spray projects in your  
4 district as opposed to Mr. Galloway's?

5 A. I have to defer that to Mr. Galloway  
6 because he knows my cost.

7 Q. He knows your cost.

8 MR. GALLOWAY: A. Would there be a  
9 difference between the two areas per hectare?

10 Q. Yes.

11 A. Yes, there might be. In a specific  
12 project, yes.

13 Q. When you deferred, Mr. Iskra, the  
14 question to Mr. Galloway it was because he was certain  
15 to know.

16 Mr. Galloway, your position is it might  
17 be, but you don't know for certain?

18 A. Well, in any one project, definitely  
19 my costs were lower than the 25 to \$35 for the  
20 application rate that Mr. Iskra quoted. But in any one  
21 project, it could be above or below.

22 THE CHAIRMAN: Is there any significance,  
23 Mr. Castrilli, in terms of the exact dollar figure?

24 MR. CASTRILLI: Q. Well, I really wanted  
25 just a range if either Mr. Galloway or Mr. Iskra knew

1 because you, Mr. Galloway, you have given us on page  
2 158 of your evidence just one figure of \$40 per hectare  
3 with respect to 2,4-D, and I was just wondering what  
4 the range could be?

5 MR. GALLOWAY: A. The range could be \$30  
6 to \$60 probably.

7 Q. Okay, that's fine. Mr. Galloway, I  
8 believe you introduced Exhibit 622A. It is the report  
9 on injuries and lost time for chemical and manual  
10 operations, tending operations?

11 A. That's correct.

12 Q. Do you have that before you?

13 A. Yes.

14 Q. Can you confirm for me that that  
15 report on chemical cleaning injuries is limited to  
16 short-term or acute effects such as nausea, headaches,  
17 et cetera?

18 A. The report is limited to any injury  
19 or lost time that our records would show had been  
20 reported back. So anything at all that had been  
21 reported to us on those projects is listed there.

22 Q. The time frame though is pretty much  
23 related to the time that the projects were conducted?

24 A. The time frame would be during the  
25 project conducted, and as an incident, and then any



1 incident are recorded by a worker.

2 From then on, if it continued in any lost  
3 time from that reported incident was -- happened two,  
4 three years later it would still be recorded. But if  
5 someone two or three years later, we would not have any  
6 record unless it was brought to our attention again.

7 Q. The report does not purport to be a  
8 review of the chronic or long-term effects, if any,  
9 associated with the specific exposure events; is that  
10 correct?

11 A. That's correct.

12 Q. While I am on the subject of chronic  
13 and long-term effects, this reporting system generally  
14 or any other reporting system that you are aware of  
15 within the Ministry, has it ever dealt with chronic  
16 studies of herbicides sprayers, ground or aerial?

17 A. This report does not deal with any  
18 chronic studies.

19 Q. No, I'm sorry, we have established  
20 that.

21 A. Okay.

22 Q. Other studies, are there other  
23 studies that would purport to deal with the issue of  
24 chronic effects?

25 THE CHAIRMAN: Well, hold on. Is your

1 first question - which I think is a fair one at this  
2 juncture in the hearing - does the Ministry have any  
3 other reporting mechanisms to document long-term  
4 exposure effects, if any?

5 MR. GALLOWAY: No, this would be the  
6 reporting system we would have. Mr. Iskra might want  
7 to talk about the pesticide usage reports.

8 MR. ISKRA: We are required to keep  
9 pesticide -- not exposure, pesticide use records in  
10 terms of individual use. So at the district office I  
11 would have some sort of a file on the times I was  
12 involved and my position on spray projects, be it  
13 ground or aerial. It is a requirement of the Ministry  
14 of Labour.

15 MR. CASTRILLI: Q. Has that been taken  
16 and converted into a study with respect to Ministry  
17 workers?

18 MR. ISKRA: A. Not that I am aware.

19 Q. Okay. So there is nothing within the  
20 Ministry that purports to deal with the issue of  
21 chronic in the form of a study?

22 MS. MURPHY: Issue of chronic...?

23 MR. CASTRILLI: Q. Chronic effects of  
24 herbicide use, to your knowledge?

25 MR. GALLOWAY: A. That's right.

1 Q. Thank you. Could I ask you, Dr.  
2 Campbell, to take out your copy of 634A. Attached to  
3 that exhibit, Dr. Campbell, is an Appendix C authored  
4 by yourself; is that right?

5 DR. CAMPBELL: A. That's correct.

6 Q. It is entitled: Hazard to Bystanders  
7 on -- excuse me, The Hazard to Bystanders of 2,4-D  
8 Applications for Forest Management?

9 A. That's right.

10 MR. CASTRILLI: Mr. Chairman, the cover  
11 of that exhibit or the first page of that exhibit is  
12 actually an errata sheet with corrections to Exhibit  
13 643.

14 THE CHAIRMAN: Yes, I have that.

15 MR. CASTRILLI: Q. Dr. Campbell, the  
16 description of Appendix C which we find on the first  
17 page of Exhibit 643...

18 MR. FREIDIN: 43 or 43A?

19 MR. CASTRILLI: No, I am referring to  
20 Exhibit 643A and the first page of Exhibit 643A refers  
21 to Exhibit 643.

22 Q. This report was originally attached  
23 to Exhibit 643 when it was originally prepared?

24 DR. CAMPBELL: A. Yes, that's correct.

25 Q. Exhibit 643, to my recollection,

1 reported upon a spray incident involving workers; is  
2 that correct -- or contract workers to the Ministry;  
3 is that right?

4 A. That's correct, tree planters.

5 Q. Tree planters are not bystanders; is  
6 that right?

7 A. In this particular instance they  
8 would be considered bystanders because they were not  
9 people who were working on the spray project.

10 Q. All right, I see. Fine. Let's turn  
11 to page 1 of Exhibit 643A which is actually...

12 A. A map?

13 Q. No, I'm sorry. It would be page 1 of  
14 your article in Appendix C.

15 A. All right.

16 Q. The introduction speaks of -- or you  
17 speak of various symptoms associated with being sprayed  
18 by 2,4-D including nausea, dizziness and headaches; is  
19 that correct?

20 A. That's right.

21 Q. And you also speak of the body of  
22 literature on 2,4-D toxicity to humans; is that  
23 correct?

24 A. There is reference to that, yes.

25 Q. And you also note that there is



1 minimum -- there is a minimum dose required to induce  
2 observable toxic effects; is that right? It is in Item  
3 4 under that introduction?

4 A. That's in the sense of symptoms.

5 Q. Are you a medical doctor, Dr.  
6 Campbell?

7 A. No, I am not.

8 Q. Are you an expert in human  
9 toxicology?

10 A. No, I am not, but I have been  
11 involved in worker exposure studies and in the course  
12 of doing that I did work very closely with Health and  
13 Welfare Canada and received advice from, for example,  
14 Dr. Deiter Reidel who is probably one of the foremost  
15 experts on 2,4-D toxicology. In fact, he was a  
16 principal author of the World Health Organization  
17 review of 2,4-D toxicology.

18 Q. Did he assist you in the writing of  
19 exhibit -- excuse me, of Appendix C?

20 A. No, he did not.

21 Q. Did he review it?

22 A. He did not review this. He did,  
23 however, review the worker exposure study which was the  
24 basis for writing this.

25 Q. On page 2, under the heading of

1 Exposure to 2,4-D by Eating Sprayed Berries.

2 A. I have that.

3 Q. The first paragraph, you speak of the  
4 amount of berries an average-sized person would have to  
5 consume to exceed the allowable daily intake for 2,4-D.  
6 Do you see that reference?

7 A. That's correct, yes.

8 Q. And that average-sized person would  
9 be a 68-kilogram person. For those of us who came to  
10 metric late, that's roughly a 150-pound person?

11 A. That's right.

12 Q. An adult in some instances?

13 A. I'm sorry?

14 Q. An adult?

15 A. Usually, yes.

16 Q. Is there an acceptable daily intake  
17 for 2,4-D for a child?

18 A. I'm not aware of it being  
19 significantly different. The allowable daily intake is  
20 based for all humans, to the best of my knowledge.

21 Q. Is there one for a pregnant woman?

22 A. I'm sorry?

23 Q. Is there an acceptable daily intake  
24 for 2,4-D for a pregnant woman?

25 A. I'm not aware. As I say, I'm not

1 aware that the allowable daily intake is broken down  
2 according to different categories.

3 Q. That's fine.

4 A. There is an allowable daily intake  
5 for human consumption.

6 Q. I presume your answer would be the  
7 same for an old person?

8 A. For which, an old person?

9 Q. Yes.

10 A. As far as I know.

11 Q. Page 3, it is under the heading of:  
12 Causes of Symptoms Reported by Bystanders. Do you see  
13 that?

14 A. Yes.

15 Q. You note in that paragraph that  
16 alleged symptoms of 2,4-D exposure sometimes may be  
17 psychosomatic in origin?

18 A. Yes.

19 Q. And that worry can produce symptoms?

20 A. Yes.

21 Q. Are you a psychologist, Dr. Campbell?

22 A. No, I am not.

23 Q. Are you a psychiatrist, Dr. Campbell?

24 A. No, I am not.

25 MR. FREIDIN: Mr. Chairman, perhaps I

1 could indicate that I think the Board would take  
2 judicial notice of the fact that the word 'produces' --

3 MR. CASTRILLI: Give me a break.

4 THE CHAIRMAN: Well perhaps; perhaps not.  
5 I think the point has been made.

6 MR. CASTRILLI: Q. Dr. Campbell,  
7 continuing with you. I have your testimony down for  
8 June 6th as indicating that one of the purposes of  
9 chemical site preparation was to dry up vegetation for  
10 a prescribed burn. Do you recall that testimony?

11 DR. CAMPBELL: A. Yes, I did.

12 Q. And the herbicides that would be used  
13 to dry up vegetation for a burn would include 2,4-D?

14 A. Yes.

15 Q. Can you advise the Board of any  
16 others that would be used for that purpose in Ontario?

17 A. Certainly --

18 Q. The area of the undertaking?

19 A. Certainly glyphosate would be.

20 Q. Is MNR aware of any studies  
21 respecting the release of carcinogenic substances from  
22 the burning of herbicide-treated slash and wood?

23 A. Would you run that by again, please?

24 Q. I will ask it two ways. Has MNR  
25 conducted any studies respecting the release of



1 carcinogenic substances from the burning of  
2 herbicide-treated slash and wood?

3 A. Are you talking about carcinogenic  
4 substances as a consequence of the herbicides, or from  
5 the wood per se?

6 Q. As a consequence of burning  
7 herbicide-treated wood.

8 A. Well, there is two possible sources  
9 in this particular case. One could be the idea of a  
10 herbicide either being carcinogenic itself or during  
11 fire, breaking down the carcinogenic substance, or  
12 there is also the possibility that you can have  
13 carcinogenic substances from the wood itself,  
14 absolutely nothing to do with the herbicide.

15 Which are you asking?

16 Q. Herbicide-treated wood. We are  
17 talking about slash and burn material in the forest  
18 treated by an herbicide.

19 Has MNR conducted studies with respect to  
20 the release of carcinogenic substances as a result of  
21 the burning of that herbicide-treated wood?

22 A. MNR has not completed those type of  
23 studies. The reason we haven't is because the research  
24 and, in fact, the exposure scenarios for that type of  
25 situation have been worked out in the U.S., and the

1 conclusion is that there is not a significant human  
2 health hazard as a result of using herbicides for  
3 drying out vegetation prior to a prescribed burn.

4 Q. You said MNR has not completed those  
5 studies?

6 A. No, has not conducted studies.

7 Q. Conducted. Can you undertake to  
8 provide me with a list of whatever studies you are  
9 referring to from the U.S.?

10 A. Yes, I will.

11 MR. CASTRILLI: Mr. Chairman, could I  
12 have a moment's indulgence?

13 THE CHAIRMAN: Very well.

14 MR. CASTRILLI: Q. Dr. Campbell, your  
15 last answer you indicated that the studies you are  
16 referring to and which you have undertaken to provide  
17 to this Board conclude that there is not a significant  
18 human health effect?

19 DR. CAMPBELL: A. Perhaps just let me  
20 dig mine out and I can quote from the exact words.

21 Q. Well, hold on. I just want to know  
22 whether the studies also refer to environmental  
23 effects?

24 A. Refer to which?

25 Q. Environmental effects?

1 MS. MURPHY: Can we have a definition.

2 MR. CASTRILLI: In addition to human  
3 health effects, air emissions?

4 DR. CAMPBELL: Now, just a minute.

5 THE CHAIRMAN: Yes, But what is the  
6 impact of the air emissions; if it's not on humans, are  
7 you talking about wildlife, or what?

8 MR. CASTRILLI: I don't think I want to  
9 break down the environment into its many component  
10 parts. Air emission impacts to the natural  
11 environment.

12 MS. MURPHY: Well, my friend has asked  
13 for an undertaking to produce a list of studies and the  
14 witness has given that undertaking. My friend can look  
15 at those studies and make his own determination about  
16 whether they deal with what he considers to be  
17 environmental effects.

18 MR. CASTRILLI: I understand that. I  
19 think, however, if Dr. Campbell also intended to, or  
20 didn't intend to deal with the issue of environmental  
21 effects, if the studies that he initially has  
22 undertaken to provide only deal with the human health  
23 effects, if there are additional studies that also deal  
24 with environmental effects that he's aware of conducted  
25 in the U.S., I would like the undertaking to extend to

1 that as well.

2 DR. CAMPBELL: The studies -- some of the  
3 studies I am talking about -- referring to do also  
4 consider the hazard of smoke per se. I don't think in  
5 terms of effect of, say, smoke on wildlife.

6 THE CHAIRMAN: Well, Dr. Campbell, of the  
7 studies that you considered in formulating your answer,  
8 could you undertake to produce those studies?

9 DR. CAMPBELL: Yes.

10 THE CHAIRMAN: Whether or not they deal  
11 with everything that Mr. Castrilli wants, will have to  
12 await the production.

13 MR. CASTRILLI: That's fine, Mr.  
14 Chairman.

15 Q. And, Dr. Campbell, I have your  
16 evidence as indicating that MNR decided not to conduct  
17 its own studies in light of the findings of these  
18 studies; is that correct?

19 MR. CAMPBELL: A. Maybe I was a little  
20 hasty on that. I believe there is an on-going study  
21 with the fire people. Does Mr. Hynard remember, Mr.  
22 Elliott...

23 MR. FREIDIN: Mr. Elliott gave evidence  
24 about the experiment going on which involved NASA and a  
25 number of other agencies in the United States looking



1 at smoke -- the implications of smoke created from  
2 prescribed burns, Panel 11.

3 DR. CAMPBELL: However, I don't believe  
4 that study is completed and I'm not familiar with the  
5 details of it.

6 MR. CASTRILLI: Q. Is that one that  
7 deals with the issue in relation to herbicides?

8 DR. CAMPBELL: A. As I say, I'm not  
9 familiar with the details, so I don't know.

10 Q. And that is an incomplete study; is  
11 that right?

12 A. To the best of my knowledge, yes.

13 Q. That is fine. The undertaking in  
14 relation to the U.S. studies is sufficient.

15 MR. CASTRILLI: Mr. Chairman, I believe  
16 those are my questions.

17 THE CHAIRMAN: Thank you, Mr. Castrilli.

18 MR. HYNARD: Mr. Chairman, there are two  
19 undertakings that I would like to relieve myself of, if  
20 possible.

21 THE CHAIRMAN: Very well.

22 MR. HYNARD: With respect to Exhibit 612,  
23 Mr. Castrilli asked if I would verify that VHW, the  
24 value of harvest without treatment on page 2 is  
25 \$1,292.38 and that is correct.

1                   Mr. Castrilli also asked if I would  
2                   undertake to produce any studies conducted by the  
3                   Ministry with respect to the applicability of  
4                   shelterwood cutting to black spruce.

5                   And, Mr. Castrilli, I asked our support  
6                   people to do a library search using the key words:  
7                   black spruce, shelterwood and budworm, and they came up  
8                   with nothing within the area of the undertaking.

9                   MR. CASTRILLI: Q. So there are no  
10                  studies?

11                  MR. HYNARD: A. There are no studies  
12                  published.

13                  Q. Are there any unpublished studies?

14                  A. There was -- in the back of my mind  
15                  there were studies done near Cochrane on the  
16                  shelterwood cutting of black spruce and various forms  
17                  of strip cutting and I believe selection also back in  
18                  the early 1960s, however, there were never any  
19                  published results of that Mr. Castrilli.

20                  The study that I had been thinking about  
21                  and referred to, there are no published results and had  
22                  nothing to do with budworm.

23                  So I was mistaken in that sense. We came  
24                  up with no studies conducted by MNR within the area of  
25                  the undertaking for those three variables.

1 MR. CASTRILLI: That's fine.

2 Thank you, Mr. Chairman, and Mr. Hynard.

3 THE CHAIRMAN: Thank you.

4 Ms. Muirhead, are you ready to go?

5 MS. BAIR-MUIRHEAD: Yes, I am, Mr.

6 Chairman.

7 THE CHAIRMAN: Okay.

8 MR. CASTRILLI: Mr. Chairman, if you will  
9 just give us a moment to vacate the premises so Ms.  
10 Muirhead can move up.

11 THE CHAIRMAN: Ms. Muirhead, do we have a  
12 list of the exhibits that you are going to be  
13 requiring?

14 MS. BAIR-MUIRHEAD: Yes, I believe you  
15 do. I have provided them to Mr. Mander.

16 THE CHAIRMAN: Thank you.

17 MS. BAIR-MUIRHEAD: Mr. Chairman, perhaps  
18 I should begin by introducing myself to the parties  
19 here this afternoon as I have not appeared before you  
20 before.

21 My name is Sandra Bair-Muirhead and, for  
22 the purposes of the record, that is spelled as follows:  
23 B-a-i-r - M-u-i-r-h-e-a-d and I'm also counsel for  
24 Grand Council Treaty No. 3 along with Mr. Colborne.

25 MS. CRONK: Excuse me, Mr. Chairman.

1 Just before my friend begins, I wonder if she could  
2 indicate to the other parties as well the exhibits she  
3 intends to use because some of us may have them  
4 upstairs and will make arrangements to get them.

5 THE CHAIRMAN: Very well.

6 MS. CRONK: Thank you.

7 MS. BAIR-MUIRHEAD: I have a short list  
8 of exhibits: 603A and B; 604A and B and for a limited  
9 purpose C; 621, 665, 635, 636, and 640.

10 MS. CRONK: Thank you, very much.

11 MS. BAIR-MUIRHEAD: You're welcome.

12 CROSS-EXAMINATION BY MS. BAIR-MUIRHEAD:

13 Q. Perhaps, Mr. Hynard, I could begin  
14 with you.

15 In your examination-in-chief you  
16 indicated five factors which unit foresters must weight  
17 in selecting a tending treatment and I believe those  
18 five factors you set out on pages 116 and 117 of  
19 Exhibit 603A.

20 And if I might paraphrase those briefly I  
21 believe you said the five factors were: The tending  
22 needs of the crop being grown, tree silvics, past  
23 results, economics, and finances. Would that be a  
24 correct paraphrase?

25 MR HYNARD: A. Yes, that's correct.



1                   Q. Now, you also in your examination  
2                   went to some length to point out that those five  
3                   factors were forestry factors affecting the choice of  
4                   decision in how to treat, and that other forest uses  
5                   and values could affect the choice or indeed the  
6                   decision to treat at all.

7                   Now, it appears that the timber  
8                   management planning process will be dealt with in Panel  
9                   15, but it seems to me that in any discussion of  
10                  tending practices and the alternatives to those tending  
11                  practices, it's important to know in fact how the other  
12                  values are weighed into the decision-making process.

13                  And by that I mean, I'm not talking about  
14                  the process of identifying those other factors or  
15                  values, but once or if they are identified, how are  
16                  they -- what weight are they given and what determines  
17                  this? Can you answer that question?

18                  A. Yes, I can. The weight given to the  
19                  other use or other value and the prescription  
20                  determined to accommodate that other use or value,  
21                  including the decision to tend or not, would be made by  
22                  a planning team, planning team that is preparing the  
23                  timber management plan and which is chaired by the  
24                  district manager for the unit in which that occurs.

25                  And that decision would be made by them

1 based on the case at hand before them; in other words,  
2 it would be on a very case-specific basis.

3 Q. All right. So you have told me a  
4 little bit about how that process is affected. But  
5 when you say it's on a case-by-case basis, can you give  
6 me any indication at all as to how those factors are  
7 weighed.

8 A. Yes.

9 Q. In other words, how does the forester  
10 balance those?

11 A. I guess the first part of that  
12 decision is whether to accommodate that other use or  
13 value that has been identified or not and you are  
14 familiar, I presume, with the manner in which those  
15 values are identified.

16 Q. Yes.

17 A. The planning team would consider  
18 whether or not that was indeed a value that had been  
19 identified, whether it was going to be or could expect  
20 to be adversely affected by normal timber operations,  
21 and whether the value was such that it was worth  
22 protecting from any adverse effects that might occur.

23 They would do that based on the input  
24 that they had received from the originator of that area  
25 of concern, that may be a member of the MNR staff, for

1 example the wildlife biologist, or it could be an  
2 outside agency or individual, such as a native  
3 community.

4 Q. All right. And without getting too  
5 much into the process, how does the MNR ensure that  
6 that kind of opinion is taken into account?

7 A. How are we assured that the opinion  
8 is taken into account?

9 Q. Well, in terms of what values are  
10 worth protecting, for example?

11 A. Oh yes. Well, let's take the example  
12 of a case where a value is identified by an outside  
13 party such as a native community.

14 There would be a record kept of their  
15 input to the plan, it would be part of the  
16 supplementary documentation to the plan. That value  
17 would be -- and let's say that the group who identified  
18 filed the value also suggested a prescription to  
19 accommodate it, that would be considered as an  
20 alternative by that planning team. There would be a  
21 record kept of that suggestion as well.

22 The individual or group who made the  
23 suggestion or identified the value would be informed of  
24 the decision by the planning team and they would be  
25 advised of the review, at which time that party could

1 inspect the draft plan to ensure that their suggestion  
2 had been accommodated or at least the manner in which  
3 it had been accommodated.

4 Q. All right. And to get back really to  
5 my original question, which is with respect to the  
6 weight given those other values--

7 A. Yes.

8 Q. --and how they are balanced, I'm  
9 going to assume then that that is a totally internal  
10 process then carried out--

11 A. Yes.

12 Q. --by the planning team?

13 A. Yes. It is an internal process, it  
14 is carried out by the planning team and, as I  
15 mentioned, there is the opportunity for a review by any  
16 interested -- and all interested parties.

17 Now, the weight that the planning team  
18 would give to that other value would depend on the  
19 nature of the value and its vulnerability to adverse  
20 effects by timber management operations.

21 Q. And, again, that decision is made  
22 internally?

23 A. It's made internally by the planning  
24 team, yes.

25 Q. Thank you.



1           A. The party who submitted it would be  
2     able to review the draft plan and if I can just finish  
3     up with recourse, their recourse again would be  
4     internal within MNR, at least in a preliminary way.

5           The planning team and it's chairman have  
6     a boss and he has a boss and ultimately the Minister,  
7     and if they could gain no satisfaction over their  
8     concern, then the bump-up mechanism is the last resort.

9           Q. Thank you.

10          MS. BAIR-MUIRHEAD: I would like to refer  
11     you to an interrogatory filed by the Ministry of the  
12     Environment and that is Question No. 7 to which an  
13     answer was provided and I don't believe that has been  
14     made an exhibit yet, so I would like to make that the  
15     next exhibit.

16          THE CHAIRMAN: Okay. That will be  
17     Exhibit No. 678.

18          MR. FREIDIN: Which panel was that?

19          MS. BAIR-MUIRHEAD: I'm sorry, for Panel  
20     12.

21     ---EXHIBIT NO. 678: MOE Interrogatory No. 7 (Panel  
22                                 12).

23          MS. BAIR-MUIRHEAD: (handed)

24          THE CHAIRMAN: Thank you.

25          MS. BAIR-MUIRHEAD: Q. Okay. The

1 question asked: In what circumstances will a choice be  
2 made to conduct manual tending when (a) the manual  
3 tending is substantially more expensive. And this is  
4 the question I'm interested in.

5 The answer to part (a) was given:

6 "The choice to conduct manual tending  
7 might be made despite cost substantially  
8 higher than those of chemical methods  
9 within those areas of concern where  
10 herbicide use is not acceptable provided  
11 that competition control by manual means  
12 is feasible."

13 It goes on:

14 "An illustration of such a case is  
15 provided on page 121, third full  
16 paragraph of the Statement of Evidence of  
17 Panel 12."

18 If we could just turn to page 121 then,  
19 and it appears to be the paragraph just above the  
20 heading: Thinning.

21 You use an example there:

22 "As in the earlier white pine example,  
23 the conifer being released must be well  
24 developed and competitive and the  
25 competition must be woody and relatively

1                   few in number, otherwise costs would be  
2                   too high and results too poor to justify  
3                   a treatment."

4                   Now, it seems to me tha tthe answer to  
5           the interrogatory posed fails to answer a central  
6           question, that being, in what instances and using what  
7           indices might the use of herbicides be ruled  
8           inappropriate by the timber management planning team?

9                   In other words, your answer doesn't I  
10          believe answer that specific question.

11                  MR HYNARD: A. Could you just repeat  
12          what you said, please?

13                  Q. Okay. In answer to the question, the  
14          manual -- in what circumstances will a choice be made  
15          to conduct manual tending when it's substantially more  
16          expensive, the answer is:

17                   "A choice might be made within those  
18                   areas of concern where herbicide use is  
19                   not acceptable..." et cetera.

20                  And I'm suggesting to you that that does  
21          not answer a central question which is: In what  
22          instances and using what indices might the use of  
23          herbicides be ruled inappropriate by the planning team?

24                  A. That final question isn't contained  
25          on that page, is it, the instances and indices, or is

1 that a supplementary question of yours, I'm sorry?

2 Q. That's a question of mine that I  
3 believe is not answered.

4 A. Oh yes, then you are right.

5 Q. Right.

6 A. That question isn't contained in that  
7 interrogatory and it isn't answered.

8 Q. Right. I think it's collateral to  
9 this question.

10 A. Yes. And I should just clarify that  
11 the question is with respect to manual tending, when  
12 would manual tending be done. It would be done when  
13 use of herbicides is unacceptable and manual tending  
14 will achieve the desired result.

15 THE CHAIRMAN: Suppose the use of  
16 chemicals is unacceptable and manual tending will not  
17 achieve the desired result?

18 MR. HYNARD: Yes. In that case, Mr.  
19 Chairman, I presume that no tending would take place.  
20 And if no tending were to take place, then it's  
21 possible that no efforts to regenerate may take place  
22 as well for the simple reason that we couldn't complete  
23 the silvicultural package.

24 Now, under what circumstances might  
25 herbicides be ruled unacceptable?



1 MS. BAIR-MUIRHEAD: Q. Yes, and how do  
2 you arrive at that conclusion?

3 MR. HYNARD: A. Yes. I think I could  
4 answer that one. If the use of herbicides -- there  
5 would be several different situations. One would be if  
6 the use of herbicides would impinge upon the ability of  
7 the Ministry to achieve it's objectives in other areas,  
8 for example fish and wildlife, that would be one case.

9 Secondly, if it were to impinge upon the  
10 abilities of other forest users who occupy Crown land  
11 and for them to carry out their legitimate uses, I  
12 would expect that that would be a second case, a second  
13 category,

14 But, again, I find that very difficult.  
15 I could think of examples, but it's very difficult  
16 to -- of where herbicide use might be unacceptable.

17 Q. Aside from examples based on your  
18 personal experience then, is there any overriding  
19 principle or list or anything that one would refer to  
20 as a matter of course in making a determination such as  
21 this?

22 A. If you would allow me the time to  
23 think over that answer and come up with a definition  
24 for you, I would be able to do that easier than I can  
25 right on the spot.

1 Q. Okay, thank you. Mr. Hynard, in  
2 cross-examination - in my review of the transcript - I  
3 believe you too have agreed with Ms. Cronk that costs,  
4 while a clear advantage of the use of herbicides for  
5 cleaning methods were not the only advantage associated  
6 with that technique, and then you went on to mention,  
7 for example, high risk of worker injury inherent in  
8 manual cleaning operations.

9 And although you were not able to give  
10 any data on how many retreatments were necessary  
11 annually on areas treated manually, it was your  
12 experience that this was often the norm.

13 Are there any other advantages besides  
14 those to chemical?

15 A. Yes, there are other advantages.  
16 Effectiveness of course is one, that chemical methods  
17 are often more effective than manual.

18 Q. Okay. That has been mentioned.

19 A. I would say practical limitations too  
20 such as access. If there isn't all-weather access into  
21 the area to be treated, then aerial herbicide  
22 application has tremendous advantages.

23 Similarly, if the terrain is extremely  
24 difficult for manual workers to work on, aerial  
25 herbicide application has great advantages.

1                   Labour availability. It's entirely  
2 possible that in some areas it would be impossible to  
3 recruit the number of workers necessary to effect  
4 treatment by manual means, if they were to be done on  
5 an extremely large scale at any rate.

6                   Those are the list of things that spring  
7 to my mind.

8                   Q. All right. What about disadvantages,  
9 can you make a list of those?

10                  A. Yes. Again, practicality. If the  
11 treatment areas are very small, then aerial herbicide  
12 application methods lose their economy.

13                  There are of course the situations I  
14 described in my evidence-in-chief in which they were  
15 inappropriate for forestry reasons, the crop species  
16 were the same species as the competition, for example.  
17 That would be another situation.

18                  And, of course, in areas of concern where  
19 the use of herbicides was unacceptable, and I will be  
20 looking at those situations at my first opportunity in  
21 order to carry out my undertaking.

22                  Q. All right. What about potential  
23 adverse impacts on the provision of forage for  
24 wildlife, would that be another disadvantage or  
25 potential disadvantage?

1           A. Potentially it could be, yes. It  
2 would depend on a number of factors, one of which is  
3 the limiting supply of browse for wildlife.

4           If that were indeed the case, then that  
5 is possible that any tending in fact could be limiting  
6 those browse species. If the manual methods were being  
7 equally effective, they would be affecting browse  
8 equally.

9           The use of the type of chemical too, for  
10 example 2,4-D has less of an effect on aspen than does  
11 glyphosate. So that, for example, if such were the  
12 case it may be possible to substitute one herbicide for  
13 another, if it were otherwise equally effective.

14          Q. All right. And to turn one of your  
15 advantages on it's head, so to speak, is there not a  
16 disadvantage to chemical treatment that in areas where  
17 local employment would be of some benefit, that in fact  
18 chemical treatment tends to use less local employment,  
19 if any?

20          A. Yes.

21          Q. It's done by outside contractors?

22          A. Yes, yes. If one of your objectives  
23 were to employ people then, yes, I would certainly  
24 agree with you.

25          That is occasionally our objective. For



1 example, in UIC Section 38 employment projects where we  
2 are -- where we hire unemployed workers to conduct  
3 tending operations and those workers are used in manual  
4 cleaning situations, certainly not in chemical. I  
5 guess they are used also in juvenile spacing of jack  
6 pine, cleaning treatments.

7 Q. Thank you. Mr. Galloway, I believe  
8 my next question is directed to you. If you could  
9 refer, please, to Exhibit 621 which is a summary of  
10 documented complaints.

11 MR. GALLOWAY: A. Yes.

12 Q. And I understand that you were  
13 involved in preparing this summary?

14 A. That's correct.

15 Q. Now, does the MNR have any particular  
16 policy with respect to collection or identification of  
17 documented complaints; in other words, is there a  
18 routine or policy way of collection of these matters?

19 A. Yes. Where the complaint was -- as  
20 Mr. Nicholson stated earlier, where the complaint was  
21 of exposure or third party exposure it would be  
22 documented and must be documented by policy.

23 The types of complaints in 621, there is  
24 no policy of documentation of those except through the  
25 timber management planning process where any complaint

1 or concern expressed must be documented and responded  
2 to in that process.

3 Q. All right. Now, you have indicated  
4 throughout that oral complaints, complaints not made in  
5 writing, would not be documented in a survey such as  
6 this.

7 A. They might not be documented.  
8 They -- for instance, a complaint that was answered  
9 quickly to the person's satisfaction that was making  
10 the complaint, if a call came in, they wanted to know  
11 something or complained about an area sprayed, find out  
12 where an area was being sprayed and that answer was  
13 given to them right on the phone and that was the  
14 answer they required and was all they needed, that  
15 might not be written down.

16 Q. All right. Maybe I could ask: In  
17 your own personal experience, are oral complaints or  
18 complaints communicated by telephone or in the field,  
19 are they documented?

20 A. They would definitely be documented,  
21 if it was a complaint or something that was not  
22 answered right then on the phone.

23 The only one I can think of, and the  
24 reason I mentioned it, is just those items that were  
25 answered immediately on the phone. So in that respect

1 this number would be higher, but if it was a serious  
2 complaint or an issue that was unresolved right away  
3 and had to be responded to further, it would definitely  
4 be documented.

5 Q. Okay. But there is no policy with  
6 respect to this. So deciding whether or not it is a  
7 serious issue or whether it needs follow-up and so on  
8 are all within the individual discretion of the  
9 district office?

10 A. They are at the discretion of the  
11 office and at the party who is complaining as well  
12 because they would -- from my view, I would think if  
13 you did not get a satisfactory answer you would then  
14 follow it up in writing or go to a different person.

15 So both would have responsibilities, but  
16 that decision would be made by the person responding to  
17 the contact, that's correct.

18 THE CHAIRMAN: It has to be in the nature  
19 of a complaint, though; doesn't it? It wouldn't be  
20 documented necessarily if it were just a request for  
21 information, like where are you going to spray?

22 MR. GALLOWAY: That's right. And if the  
23 answer was given: Well, we are spraying here and the  
24 person said: Well, that's fine, thank you. That would  
25 not be documented.



1 MS. BAIR-MUIRHEAD: Q. Okay. To your  
2 knowledge have you ever -- have any of the district  
3 offices ever received a written complaint in Ojibway,  
4 for example, or do you know?

5 MR. GALLOWAY: A. In my experience, no.  
6 The only district that I am experienced with that would  
7 receive an Ojibway or Cree is Moosonee and in that area  
8 there is no forestry operations, so...

9 Q. And if you did receive or a district  
10 office did receive such a complaint, would there be  
11 someone available to respond to it in Ojibway?

12 A. In my opinion, in my experience,  
13 there would not be -- it would be unlikely that there  
14 would be anyone to respond to it, but it would  
15 certainly be a major effort trying to find someone who  
16 could respond to it.

17 Q. Do I understand your earlier answer  
18 then to be that -- or maybe you can express an opinion,  
19 if frequent complaints were made in the field to a  
20 district manager or a forester or a biologist  
21 concerning spraying and the impact, I am talking about  
22 a complaint, would that be recorded?

23 A. Yes, in my experience that would be  
24 recorded.

25 Q. I believe you indicated though in



1 your examination-in-chief - and correct me if I am  
2 wrong - that you found that the number of complaints;  
3 that is, 93 over four years, to be surprisingly low?

4 A. Yes, and that is why I mentioned  
5 those. I believe this is a reported documented  
6 complaint, that those oral ones that were answered  
7 immediately and a response would not show up in this,  
8 but that this would show any serious complaints that  
9 had been made or repeated complaints that had been  
10 made.

11 Q. All right, thank you. If I can  
12 direct my next questions to Dr. Campbell. If I can  
13 refer you to your statement of evidence, Exhibit 603A,  
14 pages 204--

15 DR. CAMPBELL: A. I have got page 204.

16 Q. --where you begin a description of  
17 herbicides commonly used?

18 A. Right.

19 Q. 2,4-D, I take it, is the most common  
20 herbicide; is that fair--

21 A. Yes, at the present time.

22 Q. --in forestry applications?

23 A. Slightly more than glyphosate.

24 Q. All right. And it has been used in  
25 the province for roughly just over 30 years?

1           A. It may well have been used before  
2           that. We pointed out that the first aerial application  
3           was in the early 1950s. So it is, yes, of operational  
4           use.

5           Q. All right. Would it be fair to say,  
6           Dr. Campbell, that in terms of collection of scientific  
7           data that 30 years is not long enough time to judge  
8           potential long-term effects on the environment of a  
9           herbicide such as 2,4-D?

10          A. Could you run that by again?

11          Q. Would it be fair to say that in terms  
12          of collection of scientific data 30 years is not long  
13          enough to judge long-term effects of a chemical  
14          herbicide, such as 2,4-D, on the environment?

15          A. I would disagree with that.

16          Q. Okay. On what basis would you  
17          disagree?

18          A. Well, there certainly have been many  
19          studies since 2,4-D being used in any situation. A lot  
20          of data has been generated. There is not any  
21          indication of a long-term impact on the environment to  
22          date, and I would think that 30 years would be long  
23          enough. I mean, that's my personal opinion.

24          Q. All right. 30 years in your personal  
25          opinion is long enough. What about glyphosate used in

1 the forest industry since -- or registration anyway  
2 obtained in 1984?

3 A. That is correct. In Canada and it  
4 was registered in the United States I think about 1977,  
5 if I am not mistaken.

6 Q. All right. So we have a range of use  
7 between 5 and 12 years in either Canada or the U.S.?

8 A. That's correct.

9 Q. All right. Again, do you consider  
10 that a long enough period of time in order to judge the  
11 long-term environmental effects?

12 A. I guess it depends what kind of  
13 long-term environmental effects you have in mind. The  
14 research -- there is a considerable amount of research  
15 on environmental impact of various pesticides. The  
16 types of things that happen tend to be fairly similar.  
17 There is a considerable body of knowledge about the  
18 persistence and toxicology of glyphosate. It is hard  
19 at the present time to visualize what sort of long-term  
20 impact would occur.

21 Q. Correct. And it would be difficult;  
22 would it not, to assess its impact on say wildlife or  
23 the biocumulation -- bioaccumulation effects of a  
24 herbicide such as glyphosphate (sic)?

25 A. The chemical is actually glyphosate.

1 Q. Sorry, glyphosate.

2 A. You have got an extra syllable in  
3 there.

4 But one thing we do know about glyphosate  
5 is that it does not accumulate; in other words, build  
6 up in animal tissues to higher concentrations that  
7 occurs in the environment.

8 Q. And you feel confident in stating  
9 that, where the herbicide has only been used in Canada  
10 since 1984?

11 A. Well, if it has been used in the  
12 United States -- well, if it has been used in Canada  
13 even for -- I should back up a little bit.

14 What we have to realize is, is that the  
15 basis for a herbicide becoming registered, a  
16 considerable amount of environmental impact data has to  
17 be generated.

18 The research began in the early 1970s.  
19 One of the things that the regulatory process in  
20 Ottawa, through the federal regulatory process, checks  
21 is whether or not a particular pesticide does  
22 accumulate in wildlife or build up. That's something  
23 they look for very carefully.

24 Q. All right. So you are basing your  
25 view then on the regulatory scheme and testing?



1                   A. I am familiar with the technical  
2 literature on the subject as well.

3                   Q. Okay, thank you. I think I have your  
4 answer.

5                   MS. BAIR-MUIRHEAD: If I could just have  
6 one moment, Mr. Chairman.

7                   THE CHAIRMAN: Okay. Would you like to  
8 take a break at this time?

9                   MS. BAIR-MUIRHEAD: That would be fine.  
10 Thank you.

11                  THE CHAIRMAN: All right. Why don't we  
12 take 20 minutes at this time. Thank you.

13 ---Recess taken at 2:45 p.m.

14 ---On resuming at 3:10 p.m.

15                  THE CHAIRMAN: Thank you. Be seated,  
16 please.

17                  MS. BAIR-MUIRHEAD: I am not going to be  
18 able to read my notes. Excuse me, I have to rearrange  
19 the microphone.

20                  THE CHAIRMAN: It has been known to  
21 attack unwary counsel.

22                  MS. BAIR-MUIRHEAD: Okay, thank you.

23                  Q. I have a question for Mr. Buss. I  
24 have reviewed the transcript of your evidence-in-chief  
25 and I believe that - and you can correct me if I

1 paraphrase you incorrectly - but I believe that you  
2 indicated that the potential effects of mechanical or  
3 manual tending in the boreal forest and for even-aged  
4 management is that tending initially suppresses  
5 competition, but that oftentimes that competition comes  
6 back and that this is a benefit, particularly if  
7 looking at the production of browse for herbivores.

8 Would that be correct?

9 MR. BUSS: ~~That's~~ That's correct, yes.

10 Q. But that it's a short-term benefit?  
11 You see that as a short-term benefit?

12 A. Yes.

13 Q. And that in the long term, the  
14 potential effects in the boreal is that after you reach  
15 free to grow and the canopy begins to close in on the  
16 diversity in the site, in terms of composition, you may  
17 have the same species on the site but the composition  
18 or per cent of the composition of the stand increases;  
19 that is, in the conifer component increases?

20 A. That's correct.

21 Q. And that in those circumstances for  
22 those species of wildlife that are associated with  
23 conifer-dominated stands, it is a positive effect and  
24 for those species associated with mixed wood stands  
25 there could be a negative effect?

1 A. That's correct.

2 Q. Okay. And basically you gave the  
3 same evidence in your statement of evidence in Exhibit  
4 603B.

5 And, finally, I think you indicated that  
6 over most of a management unit you wouldn't expect that  
7 the application of mechanical and manual tending would  
8 have an adverse effect. And you based it on this:  
9 That because all stands aren't treated at once, because  
10 harvest and other forest management activities occur in  
11 rotations, differences between stands remain fairly  
12 diverse?

13 A. Yes, that's correct.

14 Q. All right. Would it not be equally  
15 true that locally, or on a local basis, you would  
16 expect that the application of such tending would have  
17 locally negative effects; that is, on a particular  
18 species of wildlife in a particular area. Would that  
19 be a fair statement?

20 A. In a very local situation, yes.

21 Q. All right. And that would not  
22 necessarily be a problem for the protection of that  
23 species overall or for sports hunters, for example, or  
24 for conservationists; for native people living in a  
25 particular community within the area of the

1 undertaking, that the effects of that sort of tending  
2 might present a real impact, a real negative impact?

3 A. Well, you would have to judge that on  
4 the basis of the connection or the use of the wildlife  
5 by the people.

6 Q. All right.

7 A. Generally --

8 Q. It would have a negative effect, for  
9 example, on trappers or could have?

10 A. Yes, and it could have a positive  
11 effect on trapping as well.

12 Q. All right.

13 A. A good number of the species that  
14 trappers are indicated they are involved with that are  
15 important to them are associated with wetland habitats.

16 You think about beaver, otter, mink,  
17 muskrats, they are all wetland community species and  
18 they are areas that are protected by and large through  
19 areas of concern either for fishing or fisheries  
20 habitat or tourism.

21 So in that sense, the greatest producer  
22 of money, as far as trapping species goes in the  
23 Province of Ontario is muskrat, and that's not a forest  
24 species. Beaver is No. 2 and beaver is also an aquatic  
25 species.



1                   So the ones that would be impinged on  
2                   would be those associated with forested lands and that  
3                   pretty much gets you to marten and fisher.

4                   Q.   Mm-hmm. Or lynx?

5                   A.   Or lynx.

6                   Q.   Or fox?

7                   A.   Or fox.

8                   Q.   All right. And what I am saying is  
9                   that locally these species could be negatively impacted  
10                  by the particular tending practices used?

11                  A.   Yes, it is kind of a two-edged thing  
12                  too because it is not always the same. For instance,  
13                  fox and lynx might be impacted if you reduce the  
14                  habitat for their prey species which are small mammals.

15                  So if you hasten a stand into -- by  
16                  tending, if you shorten the period that it is in a  
17                  mixed wood, get it to a closed canopy situation faster,  
18                  that can be seen as a disbenefit for those species  
19                  associated with mixed wood.

20                  Then again, if you are looking at marten,  
21                  who inhabit primarily coniferous forests, tending could  
22                  be seen as being positive because it is going to hasten  
23                  the return of that stand into a conifer-dominated  
24                  situation. So you are going to lose on some, you are  
25                  going to gain on others.

1 Q. All right. Again I would ask you  
2 that, given in some cases there is going to be a  
3 negative impact on the local community, and I think you  
4 can agree with that.

5 A. Mm-hmm.

6 Q. Can you tell me what consideration is  
7 given that potential negative impact on -- well, in  
8 this case, on local native communities in deciding upon  
9 specific tending treatments. If any consideration,  
10 what consideration is given?

11 A. If an area was identified or if a  
12 concern was identified during the planning process, and  
13 that's the period or the point in time that such a  
14 consideration might be raised or a concern might be  
15 raised, then it would be up to the planning team to  
16 evaluate what sort of an impact they anticipate.

17 So if you looked at a trapping area, a  
18 trapping zone and it was going to be determined that  
19 you were going to impact a certain percentage of that  
20 zone, a decision would have to be made whether or not  
21 to carry the project out or whether it was going to  
22 adversely affect, and that would be a saw-off, you  
23 would have to deal with the trapper that's involved.

24 Q. Okay. And, again, similar to a  
25 question put to Mr. Hynard - and I don't know want to

1 get into the process - but I would like to ask you a  
2 question as to what weight might be attached to a  
3 particular wildlife habitat as opposed to -- sorry,  
4 protection of a particular wildlife habitat as opposed  
5 to, say, the commercial imperatives of speedy  
6 development of good quality timber, and how is that  
7 integrated into the planning or the process of choice  
8 with tending treatments?

9 A. Okay. There is a bit of a weighing  
10 system indicated in the planning process because  
11 consideration for rare or for endangered and threatened  
12 species -- not rare, but endangered and threatened  
13 species is mandatory, and the application of the  
14 guidelines regarding moose habitat and deer habitat --  
15 or moose habitat and the fisheries guidelines are  
16 mandatory.

17 At this point we are using the deer  
18 guidelines but they are not mandatory in the same  
19 policy sense that the moose and the fisheries ones are.

20 So those would be situations where there  
21 would have to be -- it's mandatory. If you have an  
22 endangered species identified, habitat in the timber  
23 management planning area, you must apply the guidelines  
24 that protect that habitat or that species.

25 Q. All right. And aside from areas



1 where guidelines exist, and I am getting an indication  
2 from you that those are quite limited, what --

3 A. Well, over most of the northern  
4 boreal part of the area of the undertaking moose  
5 guidelines are applied.

6 Q. I'm sorry, I mean limited in the  
7 terms of species, wildlife species?

8 A. The guidelines are limited in terms?

9 Q. They don't deal for many of the --  
10 with many of the furbearing animals, for example?

11 A. Well, we are dealing with a featured  
12 species approach here that Dr. Euler explained in Panel  
13 10 that indicates that if we manage -- if we apply the  
14 guidelines for moose that we are looking after - I  
15 don't know the exact figure - it is 60 or 70 per cent  
16 of the species that occur in that part of the area of  
17 the undertaking.

18 Now, what you would look at, what a  
19 manager would have to weigh off. If he is looking at,  
20 let's say, an extensive area that's going to be subject  
21 to some sort of tending, that's if it is mechanical or  
22 manual or aerial, I assume herbicide spraying, the same  
23 would have to be taken into consideration.

24 You would look at the area that you are  
25 doing in relationship to habitat conditions in the



1 surrounding area because the objectives are not as  
2 precise as they are for, let's say, endangered species.

3 So we are saying, if we are affecting the  
4 quality of habitat for marten over this 200-hectare  
5 area or this 300-hectare area, is there marten habitat,  
6 a suitable condition elsewhere in this unit and is it  
7 enough to maintain the population.

8 Q. Okay. I don't know if I have got an  
9 answer to my question though, which is: What weight or  
10 how is this all balanced or integrated into a decision  
11 of tending treatments? What weight is given to those  
12 other values in terms of wildlife habitat specifically?

13 A. Weight against what? Do you mean of  
14 doing the tending or not doing it?

15 Q. Well, forest management imperatives,  
16 what a forester would consider important in management  
17 of the area.

18 A. Well, for the ones I have mentioned  
19 where we have policy and guidelines, they are applied  
20 and it is implicit in the planning process--

21 Q. All right.

22 A. --and there is policy that deals with  
23 it. If you are talking about beaver or some of these  
24 aquatic furbearers, the forest management activity by  
25 and large doesn't impinge on it or anything, we could

1 encourage forest managers to do what might be an  
2 improvement for the habitat.

3 For instance, cutting to the shoreline in  
4 an area might be just the best thing you could do to  
5 improve the habitat for beaver because beaver depend  
6 upon on hardwood species and they resprout very well  
7 after you cut.

8 If it was the consideration for marten  
9 alone, which is one of the species that has been shown  
10 to be adversely affected, then what we would say is --  
11 I am guessing now, I am using a scenario here in my own  
12 mind. Let's say the decision was made to cut the area,  
13 okay, so we have -- access has been developed, the area  
14 has been harvested.

15 Now, if you are looking for that area to  
16 return to a situation -- to a condition where it will  
17 support the kind of population it did prior to harvest,  
18 then returning it to that condition quickly would help  
19 do that.

20 Does that help explain it?

21 Q. Well, I think I will leave it for the  
22 moment. Let me ask you another question.

23 Would you agree with me if I said that  
24 the Ministry of Natural Resources in fact does not have  
25 much data on the relationship of furbearing animals to

1 particular types in abundance of certain vegetation?

2 Do you agree that there is a posity of  
3 that type of data available in which to make the  
4 decisions you are referring to?

5 A. I am not sure we have data that  
6 defines very closely what the effects are of tending as  
7 separate from other forest activities, but in terms of  
8 the relationship between furbearers and their habitat,  
9 there is quite a quantity of literature available that  
10 indicates what habitat conditions are sought by various  
11 furbearing species.

12 Q. All right. Well, perhaps you could  
13 turn to Exhibit 603B at page 467.

14 A. Yes, I have that.

15 Q. And that's an article by I.D.  
16 Thompson titled: Habitat Needs of Furbearers in  
17 Relation to Logging in Boreal Ontario?

18 A. That's correct.

19 Q. All right. If I could just read a  
20 little from the introduction, the first sentence:

21 "Biologists and foresters have a  
22 difficult time dealing with the creation  
23 of moose habitat other than as a  
24 byproduct of logging. Therefore, it is  
25 not surprising that furbearing mammals



1 are generally forgotten in planning  
2 for timber harvest in Ontario."

3 And a little later on, the second column,  
4 third full paragraph:

5 "Owing to the posity of furbearer  
6 habitat studies, a literature review is  
7 not a difficult task. Somewhat more  
8 tedious was determining which of the  
9 studies in other forest types bore some  
10 relevance to boreal Canada."

11 And it goes on. Would you agree with the  
12 statements made there relating to the posity of  
13 furbearer habitat studies? This was an article, I  
14 understand, submitted to the June, '88 Forestry  
15 Chronicle.

16 A. I am aware of Mr. Thompson's work, I  
17 am also aware that he doesn't cite in here a recent  
18 publication that the Ministry of Natural Resources was  
19 part of, and that is a summary of information on  
20 furbearing animals from across North America. It is  
21 about a thousand-page volume that was put together by  
22 the Ministry of Natural Resources that talks about fur  
23 harvests for management and habitat relationships.

24 And I don't know whether Mr. Thompson had  
25 the use of that when he did this, but I don't see it



1 cited here because it was edited by Milan Novack and I  
2 don't see his name in his literature cited.

3 And, as I mentioned, I agree to the  
4 extent that we don't have a great deal of information  
5 or studies that indicate how furbearers react to  
6 tending, but I think the idea that they are still --  
7 that there is not information about how or how wildlife  
8 react or furbearers react to their habitat, I wouldn't  
9 agree with that.

10 Q. All right. That's what Thompson says  
11 in fact, though; does he not? He doesn't limit the  
12 posity of research to the area of tending?

13 A. Well, he doesn't say. He just says  
14 posity of furbearer habitat studies, he doesn't say  
15 what it is in relationship to. But I know he did some  
16 work on his own with regards to marten.

17 Q. All right. Aside from the study that  
18 you have mentioned conducted by the Ministry of Natural  
19 Resources, are there any other studies that you are  
20 aware of that are not included in Thompson's review?

21 A. Not that I am aware of. I didn't do  
22 a literature review for that section.

23 MS. KRISHKA: A. I am aware of a couple  
24 of studies in that area that relate a little bit more  
25 directly to herbicide tending.

1           There is a study being done currently in  
2 Thunder Bay, of which I was a co-author, and that's  
3 looking at the impact of glyphosate on wildlife habitat  
4 and furbearers are included in there.

5           And, in addition, there was a study done  
6 a little while ago in Oregon, it was a paper called:  
7 The Fate of Glyphosate in an Oregon Forest, and they  
8 looked specifically at -- they did trappings, and I  
9 believe now there is three years' data or three  
10 seasons' data after the initial application and, in  
11 that particular study, they have not noted any  
12 short-term changes in the populations.

13           MR. BUSS: A. Basically what is done in  
14 the studies is they often look at species that have a  
15 higher population rate turnover than the topline  
16 predators which would be many of the furbearers, at  
17 least the carnivores anyway.

18           In order to look at these effects they  
19 look at the effects on small mammals; mice, boles,  
20 chipmunks, red squirrels, that kind of thing. If they  
21 don't see major implications of the populations there,  
22 then they assume that the predators or those species  
23 aren't going to be impacted either.

24           Q. All right. And you are offering that  
25 as a partial explanation of why there may not be

1 specific studies relating to furbearers?

2 A. That probably could be part of the  
3 reason.

4 Q. Thank you. Mr. Churcher, if I could  
5 direct some questions to you. I am going to refer to  
6 Exhibits 635 and 636, those being the News Releases by  
7 the Ministry of Natural Resources.

8 MR. CHURCHER: A. Yes, I have them.

9 Q. Actually, I would like to refer to  
10 Exhibit 636, that being the release of Vincent Kerrio?

11 A. Yes, the one dated February--

12 Q. February 13th, '86?

13 A. --13, '86. Yes.

14 Q. And in the second paragraph -- sorry.  
15 Yes, it reads that:

16 "Under the circumstances of a minority  
17 government, we have decided to proceed  
18 with the biological spray program this  
19 year. This is the only way we could get  
20 all parties' support for any aerial  
21 spraying program to battle the present  
22 budworm and gypsy moth infestation."

23 All right. I believe that you indicated  
24 that at the regional working committee level, for  
25 preparation for the 1987, 1988 and 1989 programs, the

1 proposals that went forward to the Minister were for BT  
2 only?

3 A. That is correct.

4 Q. Okay. And that, therefore, the  
5 Minister was not placed in a position where he had to  
6 make a decision about the use of chemical insecticides  
7 in any of those three years?

8 A. That is also correct.

9 Q. All right. And I believe you also  
10 stated that in your view the decision made in 1986 was  
11 for that year only and that that decision could be  
12 reviewed in later years if the need arose?

13 A. That was my understanding and--

14 Q. That's your interpretation?

15 A. --I believe it was the evidence that  
16 I gave.

17 Q. All right. So that although, as a  
18 practical matter - you tell me if you agree with this -  
19 ministerial policy has been use of biological  
20 insecticides only, the issue of what the actual policy  
21 is, if any, has not been tested based on what you said  
22 earlier, that the regional working committees did not  
23 put forward any proposal for chemical?

24 A. Yes, from that point of view I would  
25 agree with your statement, the regional committees have



1 not tested whether or not the BT only policy still is  
2 in existence.

3 Q. All right. And I believe that you  
4 were asked by Ms. Cronk a series of cross-examination  
5 questions relating to ministerial policy.

6 With respect to chemical insecticides,  
7 she asked you - if my notes are correct - if you had  
8 any reason to believe as a result of communications  
9 which you received in the field or in your position  
10 with the Ministry, to believe that circumstances had  
11 changed in any of 1987, 1988 or 1989 to date; that is,  
12 circumstances as to the likelihood of that kind of a  
13 proposal, that kind of a proposal being a  
14 recommendation for an insect/pest management program  
15 which would include use of chemical insecticides.

16 Now -- and you answered no. I would like  
17 to put to you, similarly, have you received any  
18 communications or other indications that the Ministry  
19 has adopted -- or the Minister has adopted a policy  
20 ruling out the possibility of chemical insecticides if  
21 a situation appeared to warrant it?

22 A. As I understand the question, have I  
23 received any documentation ruling out chemicals?

24 Q. Yes, or communications of any kind?

25 A. No, I have not.

1 Q. All right. And in fact would you  
2 agree with me the only public statement we have from  
3 the present Minister in fact suggests a reluctance to  
4 rely on only biological spray program, prefaced as it  
5 is with, under the circumstance of a minority  
6 government?

7 A. Yes, that News Release that we have  
8 before us, Exhibit 636, is the only written statement  
9 that I am aware of.

10 Q. And would you agree with me that it  
11 suggests a reluctance by the Minister, at least at that  
12 time, to rely on only a biological spray program?

13 A. That would be my interpretation of  
14 the statement, yes.

15 Q. Okay. And, as you say, that's the  
16 only public statement we have?

17 A. Yes, to my knowledge.

18 THE CHAIRMAN: Excuse me a minute.

19 Mr. Churcher, would not the Minister have  
20 either responded to questions in the legislature or  
21 made a statement in the legislature at the commencement  
22 of the 78-80 -- sorry, the 87-88 spray season when the  
23 decision would be taken at that time as to what the  
24 program would consist of?

25 MR. CHURCHER: He may have, I don't

1 recall.

2 THE CHAIRMAN: I guess what I'm asking  
3 is: How is the information conveyed to the public at  
4 large as to what the decision is on the program in a  
5 particular year?

6 MR. CHURCHER: The initial announcement  
7 to the public would have been made in the form of the  
8 information centres and open houses that we discussed  
9 before and that would have been in January, that would  
10 have been the proposals.

11 The announcement of what the final  
12 decision would be would have -- if it was not in the  
13 form of a News Release such as this, then it would have  
14 been approximately 30 days prior to the expected  
15 startup of the spray program.

16 THE CHAIRMAN: And is there any News  
17 Release for February, March, April, May of '87?

18 MR. CHURCHER: No, not that I am aware  
19 of, not that I could find in my files.

20 MR. MARTEL: Would you not expect a  
21 change in policy not to come out in the legislature as  
22 opposed to, I think you just said it could be announced  
23 in January at an open house.

24 Would you not expect that to come, if it  
25 were a direct reversal of Ministerial policy, to be



1 announced publicly rather than through a forum at an  
2 open house in Chapleau, let's say?

3 MR. CHURCHER: Well, in the event that a  
4 regional committee felt it was necessary to use  
5 chemical insecticides and was making that proposal, and  
6 that those proposals were accepted by the senior levels  
7 of the Ministry of Natural Resources and we were  
8 allowed to go forth with those proposals to the public  
9 in the information centres, I would imagine the  
10 decision would be made at that time as to whether or  
11 not they would like to preced those information centers  
12 with some form of public announcement, that the  
13 Minister was about to undertake information centres on  
14 the proposed use of chemical and biological  
15 insecticides.

16 It's somewhat of a hypothetical  
17 situation, I guess, in how I would perceive that  
18 evolving.

19 MS. BAIR-MUIRHEAD: Q. Mr. Nicholson, I  
20 have some questions for you. In my review of your  
21 examination-in-chief, I came across a statement made by  
22 you, and if you will accept my notes as quoting you  
23 correctly - perhaps you can just listen - I think you  
24 indicated that over this last 10-year period there has  
25 been sort of a developing, changing relationship with



1 the forest industry and there is a much higher dialogue  
2 if you will between the forest industry and the  
3 Ministry of Natural Resources in developing something  
4 on a procedural basis that is mutually acceptable.

5 Does that sound like it's correct?

6 MR. NICHOLSON: A. I think that's  
7 correct to the context, yes.

8 Q. Okay. And if you will excuse the  
9 analogy, and I may be being a little provocative here,  
10 but it appears to me that that statement is very  
11 similar to one made in reference to another industry,  
12 that being that, you know, what is good for General  
13 Motors is good for America,

14 And I would like you to -- I would like  
15 to posit to you that in fact, wouldn't you agree that  
16 the forest industry is a business, is in business as a  
17 commercial operation to make a profit?

18 A. I can't comment on your analogy on  
19 General Motors.

20 Q. No, I'm not asking you to.

21 A. Okay. And I would assume that forest  
22 industry is in a business.

23 Q. All right. And that as such a  
24 commercial enterprise, their interests might not always  
25 be the same as those of an individual member of the

1 public, for example? A trapper, for example.

2 THE CHAIRMAN: Isn't this speculation on  
3 this witness' part? I mean, in what capacity would he  
4 be answering that question?

5 MS. BAIR-MUIRHEAD: I will be more  
6 specific then.

7 Q. Can you not imagine a situation where  
8 even on a procedural basis the interests of the  
9 industry may not accord with those of certain members  
10 of the public, for example, with respect to safety  
11 measures?

12 MS. CRONK: Is my friend undertaking to  
13 prove that, Mr. Chairman?

14 MS. BAIR-MUIRHEAD: I'm not undertaking  
15 to prove it. I'm suggesting that one may be able to  
16 imagine the situation where, for example...

17 MS. CRONK: Well, Mr. Chairman...

18 MS. BAIR-MUIRHEAD: --the cost benefit  
19 analysis might not enter into considerations of a  
20 member of the public; whereas--

21 MS. CRONK: I'm sorry go ahead.

22 MS. BAIR-MUIRHEAD: --whereas it  
23 definitely would enter into consideration of the  
24 industry in relation --

25 MS. CRONK: Mr. Chairman, I have no

1 difficulty at all with questions being put to any of  
2 these witnesses if they elicit opinion evidence that  
3 they are qualified to give.

4 But my friend is now, in my respectful  
5 submission, in the dilemma where she is either eliciting  
6 an opinion that can't be expressed by a member of this  
7 panel because it's being put in the like of a  
8 hypothetical or, alternatively, she's putting in a  
9 statement of fact which attaches an obligation of  
10 proof; it's one of the two. I object to the question.

11 THE CHAIRMAN: I think the Board would  
12 have to agree with those objections, Ms. Bair-Muirhead,  
13 because it would be difficult for this witness to  
14 answer in any event because of his particular  
15 qualifications for this particular panel.

16 But if you are going to put such a  
17 supposition to him as a fact, and presuming he were  
18 qualified to answer, you would have some obligation, I  
19 think, to undertake to prove that fact or at least  
20 provide the evidence upon which that fact is based.

21 MS. BAIR-MUIRHEAD: Yes, Mr. Chairman.  
22 I'm not positing it as a fact, I'm merely relying on  
23 the statement made by the witness that the industry and  
24 the Ministry are developing something on a procedural  
25 basis that is mutually acceptable, which he's offered

1 an opinion on.

2 And I'm asking him to imagine situations  
3 where such mutually acceptable procedural operations  
4 may not be acceptable to other interested parties.

5 MR. NICHOLSON: If I can shed a little  
6 light on that.

7 My comment in terms of developing these  
8 procedural requirements was specifically pertaining to  
9 development of specifically that, procedures: How we  
10 go about doing things in terms of Ministry of Natural  
11 Resources procedures and those followed by the forest  
12 industry.

13 MS. BAIR-MUIRHEAD: I understand the  
14 statement is in reference only to procedures, and I  
15 guess I'm asking for an opinion as to whether  
16 procedures mutually acceptable to the Ministry and the  
17 industry may not be acceptable to other members.

18 THE CHAIRMAN: Well, okay. I think the  
19 Board can go as far as saying that we could, by means  
20 of judicial notice, take account of the fact that  
21 procedures that might be acceptable to both the  
22 industry and the Ministry might not be acceptable to  
23 every other party or interest group out there.

24 I don't think it's a big stretch of the  
25 imagination to realize that what might be acceptable to



1 two of the major players in this context might not be  
2 acceptable to everybody else.

3 MS. BAIR-MUIRHEAD: That is merely the  
4 point I wish to make.

5 MR. NICHOLSON: Then I can agree with  
6 that.

7 THE CHAIRMAN: I don't know if that gives  
8 you cause for concern, Ms. Cronk, or not?

9 MS. CRONK: I would have thought it  
10 self-evident, Mr. Chairman, and I have no problem with  
11 that.

12 MS. BAIR-MUIRHEAD: Q. Mr. Nicholson,  
13 with respect to buffer zones, all right, and buffer  
14 zones in the context of aerial spraying.

15 I think you indicated that their purpose  
16 was to minimize deposit into the area referred to as  
17 the no-spray zone, and that the sole purpose of the  
18 buffer zone is to try, in an effort, to minimize the  
19 movement of any spray into a no-spray zone.

20 And the question I would like to ask you  
21 is: In fact, how effective are buffer zones, and if  
22 you know of what measures can be taken to determine  
23 that, or what measures have been taken to determine  
24 that?

25 MR. NICHOLSON: A. As I understand your

1 question, it's one: How effective are the buffer  
2 zones--

3 Q. Right?

4 A. --in minimizing or preventing  
5 movement of material into an unsprayed or a  
6 no-separation area?

7 Q. Right, minimizing deposit into  
8 no-spray areas, right.

9 A. Your second part was...?

10 Q. And what measures or studies are  
11 undertaken to determine that?

12 A. You understand how the buffer zones  
13 were originally developed?

14 Q. Well, in consultation with the  
15 Ministry of the Environment.

16 A. Okay.

17 Q. My question really is in reference to  
18 how that effectiveness is measured.

19 A. In terms of on an operational basis  
20 what we would do?

21 Q. Yes, yes.

22 A. In certain types of applications we  
23 would have other aircraft flying during the period of  
24 application with the spray craft and visually the  
25 buffer zones can be monitored looking for movement of

1 spray into the buffer zone.

2 We can use some types of aerial  
3 photography in certain areas to see if there was  
4 material deposited into the buffer zone.

5 We can, in some instances, especially on  
6 some of the experimental work that Dr. Campbell has  
7 discussed, we can put down small collector plates in an  
8 attempt to quantify the amount of material that goes  
9 into the buffer -- that may be deposited into the  
10 buffer zones.

11 On an operational basis though, we feel  
12 that the buffer zones that have been established will  
13 give us a wide enough margin, if you will, that we  
14 don't feel that we have to demonstrate that we are  
15 maintaining those.

16 In terms of the planning that we go  
17 through, adherence to the operating plans, maps and  
18 photos, having navigators, reconnaissance flights, those  
19 sorts of procedural requirements, we are quite  
20 comfortable in maintaining that.

21 Q. Okay. So you have indicated a number  
22 of measures that might be taken or can be taken, but  
23 you are saying that those are not usually measured?

24 A. Some of them such as I mentioned like  
25 Dr. Campbell's experimental situations using small

1 placards on the ground, are relied upon ground-based or  
2 vehicular access. On larger-scale programs that may  
3 not be possible or even cost effective.

4 Q. Okay. So in what situations are they  
5 measured?

6 A. On a large-scale program, we would  
7 use things like availability of other aircraft to  
8 ensure that we were complying with the buffer zones as  
9 established.

10 Q. All right. In larger...

11 A. Such as in an insecticide spraying  
12 program.

13 Q. Okay. And is that done as a matter  
14 of course?

15 A. Yes. We would have other aircraft  
16 there providing navigational assistance and observing  
17 for the movement of the spray cloud out of the spray  
18 area.

19 Q. Okay. That is basically a visual  
20 test, is it?

21 A. Yes.

22 Q. Any measurement taken of the buffer  
23 zone itself in those larger insecticide operations?

24 A. No, not here.

25 Q. Can you tell me, Mr. Nicholson,



1 whether communities that are protected by buffer zones  
2 are notified of the spraying going on in the adjacent  
3 area?

4 A. Yes, they are.

5 Q. Okay. And how are they notified?

6 Q. Procedurally?

7 A. Procedurally as was indicated in the  
8 last -- in the various pieces of evidence through the  
9 planning process, public notification, notices in the  
10 media, direct mailings, door-to-door visits in some  
11 situations.

12 Q. All right. On a more practical  
13 basis, where are those notices posted? I mean, are  
14 they posted over the area being sprayed, or are they  
15 posted to delineate which is the buffer zone, are they  
16 posted in the community itself and where is that done?

17 A. Each and every treatment area that is  
18 accessible on the ground is posted with a fairly  
19 distinctive poster or a sign. There are advertisements  
20 put in the local media 30 days and 7 days in advance of  
21 the anticipated startup.

22 Q. All right. So that an inhabitant of  
23 a community protected by a buffer zone, all right,  
24 would only know where the spraying was going on if he  
25 happened to wander into that actual spray area or read

1 about the notice in the media?

2 A. No. If you are concerned about a  
3 buffer zone around an immediate community, there would  
4 be efforts made by the local district office to contact  
5 all those people in that community and inform them of  
6 that and there lots of opportunities for that right  
7 from earlier January on.

8 Q. All right.

9 A. And as a follow-up, and in one of the  
10 communications plans and it's identified in all the  
11 policies and procedures that a second check be made to  
12 ensure that all of those people, all of those groups  
13 and agencies that may be adjacent to or working near  
14 the area are informed of the program.

15 Q. All right. And you are talking there  
16 about personal contact?

17 A. Yes.

18 Q. And is that also done as a matter of  
19 course?

20 A. Yes, but the level of detail would  
21 depend upon the local situation.

22 Q. Well, how large a community, for  
23 example, would warrant that?

24 A. Warrant...?

25 Q. The personal contact you have

1 referred to?

2 A. That I would have to refer to  
3 somebody with direct district experience, one of my  
4 colleagues.

5 MR. ISKRA: A. In the project presented  
6 in the evidence, I believe the largest community there  
7 was only maybe a few hundred and we contacted those  
8 people with a mailing list. We did visit them and left  
9 information with them, if they weren't home, and this  
10 is more of summer homes.

11 Now, in respect to if we conducted an  
12 operation outside the town limits with a buffer zone,  
13 I'm not really sure whether -- I suppose what I'm  
14 having difficulty in saying is whether it would be a  
15 matter of procedure to notify 113,000 people in that  
16 manner, I would expect that maybe it would be better  
17 handled on more of a media effort.

18 What I'm thinking of analogy is to a  
19 fogging for mosquitoes or something in a town, that  
20 type of analogy where the media conducts --

21 Q. Well, my obvious concern here is for  
22 native reserve communities that may be fairly isolated?

23 A. Okay. In this project we  
24 contacted -- as part of the timber management planning  
25 program, automatically there are three communities in

1 the district and one in Sioux Lookout District which  
2 was close to one block, we did contact these people.

3 Q. And by contact, you are referring  
4 there to personal contact?

5 A. No, because the -- we did personal  
6 contact -- oh, in one instance we did, and that was  
7 where one spray block was adjacent to the reserve  
8 boundary and part of that personal contact was, there  
9 was concern that in fact the infestation kept going.

10 I have to describe this area to you, it  
11 is Lac Seul that runs east and west. The budworm had  
12 spread from west to east, south of Lac Seul. The  
13 reserve is located on the east end of Lac Seul and the  
14 conifer component was the same; one side of the reserve  
15 boundary as the other.

16 So they were concerned that in fact the  
17 defoliation had spread there, and they requested that  
18 we, or that the Canadian Forestry Service conduct a  
19 larval survey to in fact find out if that infestation  
20 had crossed over the boundary.

21 What actually happened was the  
22 infestation kept going, I guess the moth flight strayed  
23 east and in fact it did not -- there was no significant  
24 defoliation on the reserve limits.

25 Q. All right. But essentially what you



1 are telling me is that, in that instance, there was  
2 personal contact but, generally speaking, it would be  
3 by letter?

4 A. Yes.

5 Q. And posting?

6 A. Yes, unless they were within 120  
7 metres or so, generally it would be by letter. It was  
8 the same as the other -- I think we sent about 1,300  
9 letters out to people in the area.

10 Q. Okay. And, again, if the  
11 notification is done by letter or by positing, is any  
12 of that communication made in Ojibway?

13 MS. MURPHY: I believe the witnesses have  
14 already undertaken to answer that question in earlier  
15 questions to this panel. I would assume the answer  
16 would be the same.

17 THE CHAIRMAN: Well...

18 MS. MURPHY: It's my understanding, if I  
19 recall.

20 THE CHAIRMAN: That may be, but can you  
21 answer that question?

22 MR. ISKRA: Yes. There was no request  
23 for -- well, we didn't send the letter in Ojibway and I  
24 don't think we felt that there was really a need to.

25 MS. MURPHY: Sorry, I misunderstood. I

1 didn't understand the question was to this specific  
2 situation.

3 MR. ISKRA: We talk to these people  
4 fairly frequently about the cutting operations and so  
5 on and so forth.

6 MS. BAIR-MUIRHEAD: Q. All right. In  
7 fact my question does not relate to just this specific  
8 situation and my question really is: In general, are  
9 communications or notices posted done in Ojibway?

10 MR. ISKRA: A. I can't really speak for  
11 the rest of the province, but my feeling is that it is  
12 probably not, but Sioux Lookout may be different, so I  
13 can't say for sure.

14 Q. Well, perhaps you could undertake to  
15 provide me with that information for the Sioux Lookout  
16 area in particular which you indicate may be different?

17 THE CHAIRMAN: Panel - excuse me - in a  
18 situation where you have maybe four or five languages  
19 involved in total in terms of the areas that would be  
20 impacted by certain activities, whether it's Ojibway or  
21 Cree or French or English, or perhaps one or two other  
22 languages I'm not sure, why wouldn't the Ministry  
23 undertake to provide notices of this type in those  
24 languages?

25 I mean, presumably you are going to do it

1 in French and English because it's two of the official  
2 languages, but in practical terms, when you are dealing  
3 with groups that do speak another language and there is  
4 not -- we are not talking about 500 dialects, we are  
5 talking about the major groups and they are, as the  
6 Board understands, in certain areas that are quite  
7 clearly identifiable, why wouldn't the Ministry  
8 undertake notices of these types in those languages?

9 MR. HYNARD: I can't see any reason why  
10 the Ministry would not do so. The whole purpose of  
11 this is to communicate our plans and our operations to  
12 these people. I think the real difficulty comes in  
13 determining to what degree it's necessary in order to  
14 communicate those plans.

15 If there is a clearly identifiable group  
16 that has difficulty communicating in English and we can  
17 do so in another language, we would do so.

18 What would happen though if there were a  
19 few individuals maybe we weren't aware of that were  
20 unable to communicate in English or French, or Ojibway,  
21 whatever the postings are done in, I think that  
22 presents the problem, Mr. Chairman, rather than a  
23 clearly identifiable group.

24 THE CHAIRMAN: Well, I don't know. It  
25 would seem to the Board that it wouldn't be that major

1 an undertaking if you were dealing with a particular  
2 native community to put it in English and that native  
3 community's language.

4 MR. HYNARD: I would have to agree with  
5 you.

6 THE CHAIRMAN: And then if they could  
7 speak English and had no problem communicating in  
8 English, they could read the English part and, if not,  
9 they could flip it over and maybe read the other  
10 languages.

11 MR. HYNARD: And in those situations  
12 where that was a problem, I can't see any reason why we  
13 would not agree to do so.

14 THE CHAIRMAN: Certainly with the vast  
15 resources of the Ministry they could probably arrange  
16 for the translation of a notice-sized document.

17 MR. HYNARD: Thank you, Mr. Chairman.

18 MS. BAIR-MUIRHEAD: Q. I would like to  
19 refer briefly to Exhibit 640 and to the second page of  
20 that exhibit titled: Detailed Information on Recordable  
21 and Reportable Incidents on MNR Pesticide Operations in  
22 the Area of the Undertaking for the period 1980-1988.

23 And I'm not sure if I should be directing  
24 my question to Mr. Iskra or Mr. Nicholson, but...

25 MR. NICHOLSON: A. I'm fairly familiar



1 with most of these.

2 MR. FREIDIN: Which exhibit were you on?

3 MS. BAIR-MUIRHEAD: Exhibit 640, and it's  
4 the detailed report I am referring to.

5 Q. Do you have that, Mr. Nicholson?

6 A. Yes, I do.

7 Q. Now, that report, as it states, sets  
8 out the details of recordable and reportable incidents  
9 on MNR pesticide operations.

10 Could you confirm for me, Mr. Nicholson,  
11 that the report is limited to fairly immediate or  
12 short-term effects with respect to the impact of these  
13 incidents?

14 A. This has no bearing on impact of  
15 these incidents, this is just strictly a recording of  
16 occurrences.

17 Q. All right. So it does not deal with  
18 any long-term impacts at all, this is strictly a  
19 recording?

20 A. That's correct.

21 Q. Okay. There are several places in  
22 that report where overspraying occurs or spraying  
23 occurs in buffer zones. Can you tell me, Mr.  
24 Nicholson, if such overspraying occurs and you are  
25 aware of it, who is notified?

1           A. If and when this does occur, the  
2 first person obviously that is aware of it is the pilot  
3 and then he would report that to the project  
4 supervisor, the people on the ground and then...

5           THE CHAIRMAN: If he was at fault would  
6 he be the one who would report it?

7           Suppose he missed the compass heading or  
8 did something wrong, he shouldn't have been there.

9           MR. NICHOLSON: That can happen. The  
10 pilots obviously can make human errors, but one of the  
11 things that we do on behalf of MNR or even someone in  
12 the industry, we really try and encourage them to  
13 obviously do the best job that they can and, if there  
14 is an error, to report it immediately.

15          THE CHAIRMAN: All right.

16          MR. NICHOLSON: Back to your question.  
17 Then as noted in most of these, Ministry of the  
18 Environment is informed and any necessary follow-up  
19 action taken.

20          MS. BAIR-MUIRHEAD: Q. Okay. Well,  
21 could I just refer you to a specific example which is  
22 on page 5 of that report, beside northern Chapleau  
23 which reads:

24                 "In 1988 a spray swath approximately one  
25 mile from the spray block was sprayed

1 with glyphosate mix. Some spray on the  
2 edges of Mackie Lake resulted. MOE was  
3 notified and water samples were taken,  
4 but no detrimental effects were  
5 noted."

6 All right. Now, that report of the  
7 incident indicates that MOE was notified. Who else,  
8 anyone else was notified, or would have been notified  
9 in an incident such as that?

10 MR. NICHOLSON: A. The pilot would have  
11 been notified.

12 Q. Okay.

13 A. And the Ministry of Environment and  
14 our own people Natural Resources.

15 Q. Any of the users of Mackie Lake be  
16 notified?

17 A. I'm not even familiar with Mackie  
18 Lake and if it is accessible and if there are users.

19 Q. I suppose I'm asking you then a  
20 hypothetical question. If a lake is sprayed --  
21 oversprayed and there are users of that lake,  
22 inhabitants along the lakeside, cottagers and so on,  
23 would those people be notified in your experience?

24 A. My experience, my opinion, if this  
25 situation occurred let's say in and around a camp area,

1 yes, they would be notified.

2                   However all of the pilots are given  
3 instructions that during their flightpaths they should  
4 try and avoid any built-up areas whether they be camps  
5 or whatever.

6                   Q. Well, yes, obviously. So we are  
7 talking about situations where a mistake occurs?

8                   A. Yes. A buffer zone would have no  
9 impact. This is obviously an error.

10                  Q. All right. Then you are saying in  
11 your experience inhabitants would be notified of the  
12 overspray?

13                  A. In your strictly hypothetical  
14 situation, yes, they could be. We would deal with  
15 Health -- the Ministry of Health and Labour and  
16 Environment initially.

17                  Q. All right. And those are the only  
18 people who your policy provides you must notify?

19                  A. No. On page 542, we give quite a  
20 long record as to who we would contact if in fact  
21 something like this occurred.

22                  THE CHAIRMAN: Well, is there any -- in  
23 your experience, has there ever been an example where  
24 any users have been inadvertently sprayed and the  
25 Ministry has in fact notified them?



1 MR. NICHOLSON: If users or landowners...

2 THE CHAIRMAN: Well, a populated area, an  
3 area where there were users at least using the area,  
4 they might not have been sprayed directly, would they  
5 be notified afterwards to say that inadvertently we  
6 sprayed your lake and we noticed you had a cottage down  
7 there and we are telling you all about it?

8 MR. NICHOLSON: I would think that would  
9 be a standard practice. In my experience, I have never  
10 experienced that, but if there had been an error of  
11 that magnitude, I would see no reason why the local  
12 office wouldn't do that.

13 MS. BAIR-MUIRHEAD: Q. Okay, thank you.  
14 And finally, can I refer you to Appendix 11 which is  
15 page 331 of your statement of evidence.

16 A. I have it.

17 Q. Under the title of Buffer Zones. On  
18 the lefthand column, the title: Sensitive Area, and  
19 there is some definition given.

20 Are you qualified -- are you in a  
21 position to advise how sensitive areas are identified  
22 and how that information is sought?

23 A. Myself personally, no, but as a  
24 member of the committee that did this we relied upon  
25 the district people who were involved, who took the

1 information from the biologists, and the other resource  
2 users to come up with this definition.

3 Q. Okay. The biologists meaning  
4 Ministry of Natural Resources' biologists?

5 A. That's right and people from within  
6 Ministry of Environment as well.

7 Q. All right. Anyone else?

8 A. Not to my knowledge.

9 Q. Okay. So MOE and MNR?

10 A. That's correct.

11 MR. GALLOWAY: A. Any -- through the TMP  
12 process, input would be requested on that type of input  
13 from members of the public and that would be one of the  
14 reasons for the information and the open houses.

15 Q. Okay, thank you.

16 MS. BAIR-MUIRHEAD: Those are all my  
17 questions, Mr. Chairman.

18 THE CHAIRMAN: Thank you.

19 Ms. Seaborn?

20 MS. SEABORN: If I could just have a  
21 moment to get organized?

22 MR. HYNARD: Just before you leave Ms.  
23 Bair-Muirhead.

24 MS. BAIR-MUIRHEAD: Q. I'm sorry, yes,  
25 there was a follow-up question relating to...

1 MR. HYNARD: A. An unfulfilled  
2 undertaking.

3 Q. Yes. You were going to give me an  
4 answer with respect to the principles involved in  
5 determining the weight to be attached to values.

6 A. Yes. I don't have the exact words of  
7 your question down, but I hope I have their sense here.

8 Q. Okay.

9 A. You asked me to list those -- really  
10 there were two parts to the question. You asked me to  
11 list those other values in which cases herbicide use  
12 would be unacceptable and to provide the manner in  
13 which those values would be weighed by the planning  
14 team in their coming to a decision, and if I were  
15 unable to give you a listing, at least to give you a  
16 statement of principles upon which the weighing or  
17 weighting would be done.

18 Q. Yes, that's right.

19 A. The Ministry of the Environment asked  
20 in an interrogatory to Panel 12, their Question No. 2,  
21 to list those other values which would preclude aerial  
22 spraying. I am not certain whether that one has been  
23 filed.

24 MS. MURPHY: I believe it is Exhibit 610,  
25 I will check.

1 MR. HYNARD: I think you are right,  
2 except my 610 didn't contain it.

3 MS. SEABORN: My record shows it is  
4 Exhibit 610, Mr. Hynard.

5 MR. HYNARD: Thank you, Exhibit 610. And  
6 the answer to that is contained in that interrogatory.  
7 It says that:

8 "Other values may be any of the relevant  
9 items which are identified in the  
10 document entitled: Background  
11 Information, Other Resource Features,  
12 Land Uses and Values which was previously  
13 filed as part of Exhibit 5A and discussed  
14 in detail in the evidence of Panel 7."

15 I have Exhibit 5A in front of me.  
16 attachment No. 2 to Exhibit 5A lists in excess of 50  
17 different features, land uses and values which are  
18 potentially concerns to be provided for in timber  
19 management operations.

20 They include values like fisheries,  
21 wildlife, tourism, cottaging, commercial fur, wild rice  
22 and a whole host of them.

23 With respect to the second part of the  
24 question which was essentially providing the manner in  
25 which those values would be weighed by the planning



1 team in their coming to a decision, or at least the  
2 principles upon which they would do their weighing.

3 Let me first provide a definition of  
4 areas of concern just -- it's kind of a good refresher  
5 before I do this. These are geographically defined  
6 areas of value to other users or uses which could be  
7 affected by timber management operations, including  
8 roads, and which may require modifications to those  
9 operations.

10 That definition is contained on page 132  
11 of Exhibit 4 which is the Class Environmental  
12 Assessment.

13 Appendix No. 1 of that same exhibit  
14 provides the planning procedure. I don't intend to go  
15 through the planning procedure, but I think it does --  
16 at least the planning procedure for modified operations  
17 in areas of concern, it doesn't provide a formula for  
18 the actual weighing, but it does set down the  
19 principles.

20 And on the first page of Appendix 1 it  
21 states that:

22 "The planning must provide a detailed  
23 description --"

24 I am sorry:

25 "The following discussion provides a

1 detailed description of the comprehensive  
2 planning procedure which involves three  
3 steps; the consideration and  
4 identification of alternatives."

5 So, for example, the alternative to tend  
6 by using herb -- chemical means; the second alternative  
7 might be tending by manual means; and a third  
8 alternative might be no tending at all.

9 "An environmental analysis of those  
10 alternatives and selection of the  
11 preferred or most acceptable alternative  
12 with supporting rationale."

13 So that is the -- those are the  
14 statements of principle for the weighing and all of  
15 that information would be contained within the  
16 supplementary documentation of the plan.

17 MS. BAIR-MUIRHEAD: Q. All right.  
18 Again, I don't want to get too involved in process, but  
19 it seems to me we have sort of gone around in a circle  
20 because what you have given me is really the procedural  
21 steps to take, but I don't know that we are any further  
22 ahead in terms of principles to be applied in  
23 determining what weight to give the various factors at  
24 each stage.

25 MR. HYNARD: A. I guess we are back to

1 this case-by-case site-specific question again and it  
2 would be entirely case-by-case and site-specific.

3 These are the basic principles which the  
4 planning team must follow. There is no formula that  
5 tells them one value is more weighty than the other, it  
6 depends on the circumstance.

7 Q. All right, thank you.

8 MS. BAIR-MUIRHEAD: Thank you, Mr.  
9 Chairman.

10 THE CHAIRMAN: Thank you.

11 MS. SEABORN: Thank you, Mr. Chairman. I  
12 would like to begin by filing two bundles of  
13 interrogatories. The first set are Ministry of the  
14 Environment interrogatories from Panel 12, and I will  
15 read the numbers into the record.

16 I believe the majority of them, except  
17 for perhaps one, referred to this afternoon have been  
18 marked thus far in the proceedings. For Panel 12 they  
19 are Nos. 3, 5, 7, 8, 9, 10, 11, 13 and 14.

20 THE CHAIRMAN: Exhibit 679.

21 MS. SEABORN: Thank you.

22 ---EXHIBIT NO. 679: Ministry of the Environment  
23 Interrogatory Question Nos. 3, 5,  
24 7, 8, 9, 10, 11, 13 and 14.  
(Panel 12)

25 MS. SEABORN: And the second bundle are  
Panel 13 Interrogatories, Nos. 1, 2, 3, 4, 6, 7, 9, 10,

1 11, 12, 13 and 14.

2 THE CHAIRMAN: Exhibit 680.

3 MS. SEABORN: I have copies for the  
4 Board. (handed)

5 THE CHAIRMAN: Thank you.

6 ---EXHIBIT NO. 680: Ministry of the Environment  
7 Interrogatory Question Nos.  
8 1, 2, 3, 4, 6, 7, 9, 10, 11, 12,  
13 and 14. (Panel 13)

8 THE CHAIRMAN: Ms. Seaborn, can you give  
9 us any indication of how long your examination might be  
10 at this point?

11 MS. SEABORN: I would still propose, Mr.  
12 Chairman, approximately an hour and a half to two  
13 hours.

14 THE CHAIRMAN: Okay. Well, could we then  
15 purport to maybe go for one hour--

16 MS. SEABORN: I was actually --

17 THE CHAIRMAN: --or another more  
18 convenient place for you, if that's more convenient.

19 MS. SEABORN: I was actually going to  
20 suggest, Mr. Chairman, that perhaps I would break my  
21 cross-examination at five o'clock.

22 Ms. Cronk advised that she has a couple  
23 of procedural matters that she would like to raise with  
24 the Board, and rather than taking the time tomorrow,  
25 perhaps we could deal with that at five.



1                   It has been a long day for the witnesses  
2                   and I would continue tomorrow morning at 8:30.

3                   THE CHAIRMAN: Very well.

4                   MS. SEABORN: Thank you.

5                   CROSS-EXAMINATION BY MS. SEABORN:

6                   Q. Mr. Hynard, I would like to begin and  
7                   just deal briefly again with this issue of choosing the  
8                   tending treatments.

9                   Would it be a fair summary of your  
10                  evidence that environmental and socio-economic  
11                  considerations are taken into account in choosing the  
12                  appropriate tending treatment only insofar as a process  
13                  exists for identifying areas of concern?

14                  MR. HYNARD: A. Yes, I think that's  
15                  fair.

16                  Q. So in normal operating areas the  
17                  choice of tending treatment is one that is based only  
18                  on forestry factors?

19                  A. Yes, for the reason that normal  
20                  operating -- those activities in normal operating areas  
21                  would not be expected to have significant adverse  
22                  environmental effects.

23                  Q. Thank you. Mr. Galloway, could you  
24                  have in front of you please your witness statement  
25                  which is Volume I of Panel 12, Exhibit 603A. And I am

1 not sure if we will have to refer to them, but in the  
2 event we do, your set of overheads that accompanied  
3 your evidence.

4 MS. SEABORN: And, Mr. Chairman, those  
5 overheads were marked as Exhibit 620.

6 Q. Could you turn to page 156, please?

7 MR. GALLOWAY: A. Yes.

8 Q. Now, Mr. Galloway, as I understand  
9 your direct testimony, you took the chart that is found  
10 at page 156 of your witness statement and you broke it  
11 down into three different pages and those are found at  
12 Exhibit 620C, 620E and F?

13 A. That's correct, with the correction  
14 that was mailed out with the interrogatory of expected  
15 to reduce crop performance significantly on page C.

16 Q. Right. Now, if we could just deal  
17 with page 156 because that's the overall picture of the  
18 stand maintenance, decisions for release?

19 A. Yes.

20 Q. Now, once you determine that a  
21 release is necessary, as I understand the flow chart,  
22 the next step is evaluate and choose between your three  
23 options which are manual cleaning, chemical ground  
24 cleaning, chemical cleaning aerially?

25 A. Yes, that's correct.

1 Q. And under the evaluation box, one of  
2 the factors that you consider when you are deciding  
3 between these three options are the environmental  
4 effects; correct?

5 A. That's correct.

6 Q. And then there are four other  
7 evaluation criteria set out there, operational  
8 feasibility, effectiveness, cost, worker safety?

9 A. Yes.

10 Q. And your evidence was that these were  
11 the five factors that you would look at when you were  
12 choosing between the three options?

13 A. Yes.

14 Q. Now, would it be possible when you  
15 were doing the evaluation phase of your decision-making  
16 process that you could come to a negative conclusion  
17 with respect to say environmental effects and, for that  
18 reason, no release should occur?

19 A. If the evaluation of that -- those  
20 options all came out that there was to be a negative  
21 effect of all three, for instance, then nothing would  
22 occur?

23 Q. That's right.

24 A. Yes, that would definitely be a  
25 choice.

1 Q. And if the potential exists for that  
2 scenario, would you agree that looking at this chart  
3 you could put an arrow that sends you from the  
4 evaluation box back up to the box that's called accept  
5 existing regeneration?

6 A. Yes, I would agree with that.

7 Q. Thank you. Mr. Galloway, I have a  
8 few short questions for you regarding silvicultural  
9 groundrules.

10 MS. SEABORN: And, Mr. Chairman, at this  
11 time I would like to file a four-page excerpt from the  
12 Red Lake Timber Management Plan which has been filed in  
13 conjunction with Panel 15. You will recall that an  
14 earlier excerpt from this plan was filed in an earlier  
15 panel.

16 THE CHAIRMAN: Okay. Let's make this  
17 Exhibit 681.

18 MS. SEABORN: (handed)

19 THE CHAIRMAN: Thank you.

20 ---EXHIBIT NO. 681: Four-page excerpt from the Red  
21 Lake Timber Management Plan.

22 MS. SEABORN: I believe, Mr. Chairman, an  
23 excerpt from this plan was filed as Exhibit 512 or 513;  
24 however, it was a different page number.

25 Q. Do you have a copy in front of you,



1 Mr. Galloway?

2 MR. GALLOWAY: A. Yes, I do.

3 MR. FREIDIN: Mr. Chairman, perhaps I  
4 should just repeat what I indicated earlier, that these  
5 are all excerpts of Table 4.11. The numbers .3, .4,  
6 .5, et cetera, that follow are just the pages of that  
7 particular table.

8 MS. SEABORN: Thank you, Mr. Freidin.  
9 My first question was going to identify that we were  
10 dealing with Table 4.11 as opposed to Table 4.12.

11 Q. Now, at the top of the page, Mr.  
12 Galloway, this shows the silvicultural groundrules for  
13 normal operations and then the five-year term is  
14 identified. With respect to this plan the five-year  
15 term is April 1st, '86 to March 31st, 1991?

16 MR. GALLOWAY: A. That's correct.

17 Q. And looking at black spruce for a  
18 moment, the site description under black spruce No. 3  
19 is identified as deep and perfectly drained mineral  
20 soil. Do you see that?

21 A. Yes.

22 Q. And if I go across the column I see  
23 under the maintenance treatment it says: Tending  
24 generally not required?

25 A. Yes.

1 Q. And if I carry on to the next two  
2 pages, for black spruce No. 3 under that same site  
3 description, the same maintenance prescription is  
4 identified in the plan; i.e., tending generally not  
5 required?

6 A. Yes, that's correct.

7 Q. Now, at this stage of the planning  
8 process, the five-year stage, if a member of the public  
9 was looking at these groundrules, is the message that  
10 would be communicated to the public through this  
11 prescription that this -- that on this particular site  
12 type herbicides will not be used?

13 A. Yes. In those site types we just  
14 looked at there would not be any -- tending generally  
15 not required. And it is not an absolute, it is  
16 generally not required, that's correct.

17 Q. But if a member of the public looked  
18 at this at the five-year planning stage for this site  
19 description, they would be able to assume with a very  
20 high degree of comfort that herbicide would not be used  
21 with respect to those sites?

22 A. That's correct.

23 Q. And conversely, if we look at the  
24 prescription for black spruce where the site  
25 descriptions, starting on the third page, is deep, well

1 drained mineral soils, we see the maintenance treatment  
2 prescription refers to tending generally, if required?

3 A. Yes.

4 Q. And would it be correct for a member  
5 of the public who was looking at this groundrule to  
6 assume that herbicides would probably be used with  
7 respect to that site description?

8 A. Yes, based on the knowledge and what  
9 we have shown in the evidence in the past few weeks,  
10 that basically in the boreal forest the tending on  
11 those sites would be herbicides, yes, that would be a  
12 good assumption.

13 Q. And that's for all the reasons that  
14 we have talked about in terms of the limited use of  
15 manual tending, for example?

16 A. Yes.

17 Q. And would you see the drafters of  
18 this plan or a similar plan as having any  
19 responsibility to the public in terms of advising them  
20 in the event that the prescription in the silvicultural  
21 groundrules is tending generally not required, advising  
22 them that there was a change in those plans and that  
23 herbicides were going to be used?

24 A. If in that groundrule all of a sudden  
25 on all of those sites herbicides were going to be used,

1 I would see that as a requirement for change.

2 If in fact, as I said here, generally it  
3 is not required and a site was tended using herbicides,  
4 I would not see a change in that plan required.

5 Q. So it would not require a formal  
6 amendment to Table 4.11?

7 A. That's correct, if it was an example  
8 that happened only rarely or something.

9 Q. But would it require in that instance  
10 a notification to the public of some sort to advise  
11 them that there was a change in thrust with respect to  
12 that site?

13 A. It would not require notification to  
14 the public as that, it would still have the  
15 notification of the public through the aerial herbicide  
16 process, the 30 days and the 7-day notice with signs.

17 Q. So it would be through that program  
18 that a member of the public would find out that there  
19 was a change in the thrust of tending in that site?

20 A. That's correct.

21 Q. Mr. Churcher, as I understand your  
22 evidence in relation to the use of insecticides in the  
23 area of the undertaking, the thrust of MNR's program is  
24 that of protection of the timber resource?

25 MR. CHURCHER: A. That's one component



1 of it, yes.

2 Q. That's the major thrust though of the  
3 program, though; you are out there to protect the  
4 timber value?

5 A. Well, there are other values that are  
6 being protected and that are included in the procedure  
7 as being high values, but...

8 Q. And at that you are referring to park  
9 areas or scenic views?

10 A. Yes, the things that have aesthetic  
11 value or ecological value, wildlife habitat, provincial  
12 parks, as you suggested.

13 Q. While it is true that that is part of  
14 your program, isn't it correct for me -- for one to  
15 operate on the basis though that the main reason why  
16 you have the program in place is to protect the timber  
17 resource?

18 A. The majority of the area that is  
19 sprayed, yes, is for the protection of foliage or for  
20 the protection of timber value, yes.

21 Q. Yes. And that's because the thrust  
22 of the program is to protect the timber values to  
23 ensure that wood supply is not lost to insect damage?

24 A. Yes, I suppose you could characterize  
25 it that way.

1 Q. And the purpose of the program is not  
2 to control what I might term as being social pests,  
3 black flies, mosquitoes, the sort of thing that  
4 cottagers don't like?

5 A. By and large, yes.

6 Q. And there are a number of insects in  
7 the forest that are critical in the sense of keeping  
8 nature in balance; would you agree with that?

9 A. Yes, definitely.

10 Q. Now, when you were reviewing the  
11 results of biological insecticides versus chemical  
12 insecticides, you were only examining data relevant to  
13 efficacy; that's correct?

14 A. That's correct.

15 Q. And I believe your evidence was that  
16 efficacy is only one factor that comes into play when  
17 you are choosing an appropriate insecticide?

18 A. Yes, that's correct.

19 Q. I just want to have a brief look  
20 again at the Ministry's policy which is found at page  
21 148 of the Panel 13 witness statement, Exhibit 604A.

22 Mr. Churcher, I am going to try my best  
23 not to repeat old ground on this area because we have  
24 been into it a couple of times now in this panel. Is  
25 this policy still the Ministry's policy today?

1 A. Yes, it is the -- yes, it is.

2 Q. And I notice on page 147 in the  
3 left-hand corner the subject at the top refers to  
4 Aerial Application of Insecticides for Forest  
5 Management in Ontario and then the policy it says that  
6 it replaces identifies spruce budworm; correct?

7 A. Yes, that's correct. Actually this  
8 version of the policy replaces two previous policies;  
9 the one was entitled: Aerial Application of  
10 Insecticides for Forest Management in Ontario, the date  
11 of that was 1980 which is provided elsewhere as a  
12 historical document. And it also replaced a specific  
13 policy that dealt with spruce budworm spraying in  
14 Ontario, and that policy was dated 1983.

15 Q. And this 1985 policy, which is still  
16 in effect today, would apply to pests other than the  
17 spruce budworm; i.e., it would apply to the jack pine  
18 budworm, the gypsy moth and tent caterpillar?

19 A. Yes, it would. Any forest insect in  
20 Ontario that we would consider having a control program  
21 for using the aerial application of insecticides. It  
22 is a generic policy, if you will.

23 Q. Could you turn now to Exhibit 604C  
24 which is the ESSA study and, in particular, page  
25 14?

1 A. Yes, I have that.

2 Q. And the table that is identified on  
3 page 14 is called: Patterns of Aerial Insecticide Use  
4 for Timber Management in Ontario.

5 Now, this chart confirms in my mind that  
6 BT is effective not only on spruce budworm, but on jack  
7 pine budworm, gypsy moth, forest tent caterpillar?

8 A. Yes, that's correct.

9 Q. And I mean in fact effective in the  
10 sense that they are listed as a target insect for BT?

11 A. Yes, they are listed on the label of  
12 various formulations of BT.

13 Q. And then on that chart we see  
14 underneath BT three chemical insecticides listed?

15 A. Yes.

16 Q. And, again, the target insects are  
17 listed for those chemical insecticides?

18 A. Yes, that's correct.

19 Q. And the target insects that are  
20 listed for the chemical insecticides are the same  
21 insects as we find for BT; correct?

22 A. Yes, that's correct.

23 Q. Okay. And would you agree with me  
24 that today in 1989 still the most problematic pests  
25 that we have out there are these four insects: the



1 jack pine budworm, spruce budworm, gypsy moth and  
2 forest tent caterpillar?

3 A. Yes, and that is why they were chosen  
4 as examples and included in this document.

5 Q. Thank you. Now, looking at the  
6 policy again, I want to examine briefly the middle  
7 paragraph on page 148 which starts with:

8 "This policy...."

9 A. Yes.

10 Q. Now, in reviewing this it is MNR's  
11 position today; is it not, that biological insecticides  
12 ought to be preferred to chemical insecticides where  
13 they are, first, commercially available; second,  
14 reasonably cost effective; and, three, approved  
15 federally and provincially; correct?

16 A. Yes, that's correct.

17 Q. And at the moment there is no  
18 question BT is available and it is registered for  
19 forestry purposes in Ontario?

20 A. That's correct.

21 Q. And I believe you gave earlier  
22 evidence that the cost of BT was going down and that it  
23 was easier to handle today than it had been in the  
24 early 80s?

25 A. Yes.

1 Q. And would you agree with me that BT  
2 is generally more selective than a chemical insecticide  
3 in that it attacks only the lepidoptera?

4 A. Lepidopterus, or the lepi -- yes, the  
5 order of lepidoptera.

6 Q. Right. Would you agree with that?

7 A. Yes.

8 Q. And the current MNR policy does not  
9 ban the use of chemical insecticides; does it?

10 MR. CRONK: Which one?

11 MS. SEABORN: The 1985 policy.

12 MR. CHURCHER: This policy that we are  
13 talking about on page 147 and 148?

14 MS. SEABORN: Q. That's right.

15 MR. CHURCHER: A. This written policy,  
16 no, it does not ban the use of chemical insecticides.

17 Q. And just to be clear on that point,  
18 given Ms. Cronk's question, I'm not referring to any  
19 Ministerial statements on the subject, I am just  
20 dealing with the policy, okay?

21 A. Yeah, fair enough.

22 Q. And would it be fair to say that as  
23 long as you meet the criteria in the policy and you are  
24 able to demonstrate that a biological alternative is  
25 not effective -- just let me go to that in a moment.

1 MS. SEABORN: It's late in the day, Mr.  
2 Chairman.

3 Q. Let me just start that question  
4 again. And would it be fair to say that as long as you  
5 meet the criteria in the policy and are able to  
6 demonstrate that a biological alternative is  
7 effective -- is not effective, you could use chemical  
8 insecticides today?

9 MR. CHURCHER: A. Yes, I think it has  
10 been my evidence that if that was the case and we did  
11 not feel that a biological was going to be effective,  
12 we would have no other choice but to recommend the use  
13 of a chemical insecticide.

14 Now, whether or not the recommendation  
15 was accepted by the Minister is up to the Minister to  
16 decide, and I can't comment on that, but it would  
17 certainly be the technical recommendation from my  
18 professional viewpoint to use a chemical insecticide.

19 Q. But in making your recommendation,  
20 you have to apply this policy and make an evaluation of  
21 these factors?

22 A. Yes.

23 Q. In making your recommendation and  
24 before you can go to a chemical insecticide, there has  
25 to be some evidence that the biological alternative is

1 not going to do the job for you; is that correct?

2 A. There would have to be some belief on  
3 the part of the foresters and entomologists and myself  
4 that BT or the biological was not going to be as  
5 effective, yes.

6 Q. And if that policy -- if this policy  
7 did not offer that option, then would it be fair to say  
8 that what we would have in Ontario is a policy like  
9 Nova Scotia, BT only, and we don't have that policy  
10 here?

11 A. Yes, if that option was not open in  
12 this written policy on page 147-148, it would in effect  
13 be what I understand Nova Scotia has. I'm not sure if  
14 they have a written policy like this or not, but in  
15 effect that is my understanding. And there was I  
16 believe a third part to the question.

17 Q. All I am suggesting is that, because  
18 there is a clear option in this policy to use a  
19 chemical insecticide in the event that you meet the  
20 criteria, then this policy is not equivalent to other  
21 provinces that have a BT only policy?

22 A. Yes, I would agree with that.

23 Q. And in reviewing the current MNR  
24 policy, there is no standard that says where BT is  
25 available and effective but not as effective as a



1 chemical insecticide, then a chemical insecticide is  
2 preferred?

3 A. No. I believe the operative words  
4 there being reasonably cost effective -- the operative  
5 words being, where alternatives to chemicals are  
6 available, then biological would be -- as long as the  
7 biological is reasonably cost effective, then it should  
8 be used.

9 THE CHAIRMAN: Aren't those conjunctives  
10 really though? Don't you have to read all three of  
11 those criteria in before you can go to chemicals?

12 MR. CHURCHER: Oh, yes, yes. The  
13 conjunctive is 'and', it's not 'or'.

14 THE CHAIRMAN: Right.

15 MR. CHURCHER: It has to meet all three  
16 of those criteria. But for the specific criteria of  
17 effectiveness, I guess I'm keying in on the word that  
18 it's reasonably cost effective, it doesn't have to be  
19 more cost effective, is the point that I was attempting  
20 to make.

21 THE CHAIRMAN: Okay.

22 MS. SEABORN: Q. So the fact that a  
23 chemical insecticide may be more effective based on  
24 efficacy data than a biological insecticide does not  
25 give you the latitude under this policy to go to that

1 chemical insecticide; is that a fair statement?

2 MR. CHURCHER: A. It depends on how much  
3 more effective the chemical is going to be and it  
4 depends on what the objective is that you are trying to  
5 attain. But I guess in a general sense, no, the policy  
6 does not direct us to go to chemicals in that case.

7 Q. And I would suggest to you that the  
8 policy in fact has to be interpreted just the opposite  
9 way, in the sense that so long as the biological  
10 insecticide is effective, it's preferred?

11 A. Yes, as well as meeting the other two  
12 criteria as well.

13 Q. That's right. And this  
14 interpretation appears to me at least to be bolstered  
15 by the statement in the last sentence of that paragraph  
16 where it says:

17 "The Ministry will also actively promote  
18 and support research and development on  
19 insect control techniques which will  
20 reduce our reliance on chemical  
21 insecticides."

22 A. Yes, that would be a reasonable  
23 statement.

24 Q. And given the earlier 1980 policy,  
25 the emergence of the 1985 policy and the fact this

1 policy is still in effect today, coupled with the  
2 Minister's press releases that we looked at of 1985 and  
3 1986, would you not expect public concern and perhaps  
4 even public outcry against a policy that in any way  
5 endorsed the use of chemical insecticides where  
6 biological insecticides were effective?

7 MS. CRONK: Well, Mr. Chairman, that is a  
8 very long question and the witness isn't qualified to  
9 answer it.

10 MS. SEABORN: On what basis?

11 MS. CRONK: I don't believe he's been  
12 qualified as a seer of opinion. I may be incorrect on  
13 that.

14 THE CHAIRMAN: It would be speculative,  
15 in any event.

16 MS. SEABORN: Well, that's fine.

17 Q. Mr. Churcher, are you aware that when  
18 the 1985 policy was introduced, was part of the basis  
19 for that policy public concern over the use of chemical  
20 insecticides?

21 MR. CHURCHER: A. The 1985 policy is  
22 essentially a rewrite of the 1980, just an updating, if  
23 you will, of the 1980 policy.

24 I believe under cross-examination I said  
25 that my interpretation, or my understanding of why the

1 1980 policy used those words was in response to or an  
2 acknowledgement of the introduction or the availability  
3 of biological insecticides, alternatives to chemical  
4 insecticides and also an acknowledgement of growing  
5 public concern about the use of chemical pesticides and  
6 chemical insecticides, in particular in the forest and  
7 in the environment.

8 Q. Plus by 1985 we had available an  
9 alternative to the chemical insecticides in the sence  
10 that BT was becoming more refined; would you agree with  
11 that?

12 A. Yes, although we had that alternative  
13 in 1980 as well, but the Ministry had been using BT  
14 more and more between '80 and '85, we had gained more  
15 experience with it.

16 Q. Are you aware if there are any other  
17 provinces other than Nova Scotia that have a BT only  
18 policy?

19 A. I believe the Province of Quebec  
20 was -- the Ministry of Energy and Resources in Quebec  
21 was directed to gradually phase out their use of  
22 chemical insecticides in their spruce budworm spray  
23 programs to the point that they had to phase it out  
24 totally by 1987.

25 If I remember correctly, they had some



1 supplies of chemical insecticide left over in 1987, so  
2 they got a one-year extension to use up that supply.  
3 However, the program in 1988 -- the proposed program  
4 for 1989 is a hundred per cent BT.

5 Q. And Mr. Churcher, I apologize if this  
6 question has been asked before: Has any public  
7 statement been made with respect to the use of  
8 insecticides in the province for the 1989 spray program  
9 in the sense of a similar statement that we looked at  
10 for '85 and '86?

11 A. Not that I can recall.

12 Q. And there was some evidence earlier  
13 this afternoon in answering some of the questions to  
14 the effect that the overall nature of the spray program  
15 would be explained at the open houses; is that correct?

16 A. Yes, that's correct.

17 Q. Is there a document of any sort or an  
18 MNR release that would be standard for every open house  
19 that would be a summary of the insecticide program for  
20 1989?

21 A. No, I don't believe it would be  
22 standard for every open house, that would be left up to  
23 the individual region or district that was proposing  
24 the program.

25 And actually, further, in response to

1 your previous question I believe there may have been  
2 some localized news releases such as in the Thunder Bay  
3 area that would have talked about the proposed program  
4 for spruce budworm control east of the City and jack  
5 pine budworm west of the City.

6 Q. But not the same province-wide  
7 statements that we looked at for '85 and '86?

8 A. That's correct. And it was in that  
9 context that I answered the previous question.

10 Q. And just one more question and then  
11 we will leave this area, Mr. Churcher.

12 Just so I'm clear and, again any  
13 Ministerial statement aside, there is no question in  
14 your mind; is there, that the policy with respect to  
15 aerial application of insecticides for forest  
16 management in Ontario allows you to use chemical  
17 insecticides now in the proper context and under the  
18 proper circumstances in terms of meeting the criteria  
19 in the policy?

20 A. Yes. In my mind that policy allows  
21 us to use chemical insecticides.

22 Q. Thank you.

23 MS. SEABORN: Mr. Chairman, this would be  
24 an appropriate time for me to -- this would be an  
25 appropriate time for me to break the cross-examination,

1 Mr. Chairman.

2 THE CHAIRMAN: Very well.

3 MS. SEABORN: I can advise that I will be  
4 under an hour tomorrow.

5 THE CHAIRMAN: Very good. Will you be  
6 ready to go right after that, Mr. Freidin?

7 MR. FREIDIN: I may need a short  
8 adjournment if there is some re-examination arising out  
9 of tomorrow, but other than that, we will be ready to  
10 go.

11 THE CHAIRMAN: Very good. Thank you.

12 Ms. Cronk, you have some procedural  
13 matters or a procedural matter to deal with?

14 MS. CRONK: Yes, thank you.

15 Mr. Chairman, it may be that the Board  
16 would prefer not to deal with these matters this  
17 evening, but perhaps if I could just alert the Board as  
18 to what the issues are and then I'm in your hands.

19 There are two issues, Mr. Chairman. The  
20 first relates to a logistical problem which has arisen  
21 or which we anticipate will arise in complying with  
22 part of the Board's procedural order of September 16th  
23 of last year regarding the receipt and responses to  
24 interrogatories for parties following the Ministry  
25 beginning, of course, with our clients the OFIA and the

1 OLMA.

2 And I can explain, sir, what the  
3 difficulty is and what our proposal for consideration  
4 by the Board would be, if you wish me to continue with  
5 that at this time?

6 THE CHAIRMAN: All right. Well, why  
7 don't you lay out what the problem is and then we may  
8 well consider it overnight.

9 MS. CRONK: All right. The problem  
10 essentially, Mr. Chairman, is this - and just to  
11 refresh the recollection of those who may not have a  
12 copy of that procedural order here - you may recall  
13 that it was specific, first, as to what obligations  
14 would attach to the Ministry for delivery both of  
15 evidence packages and then, subsequently, for  
16 responding to interrogatories.

17 That was the first part of the order,  
18 and then it went on to deal with the obligations of  
19 over parties, the first being our clients.

20 What the order said, and for your ease of  
21 reference the two paragraphs with which we are concerned  
22 are paragraphs 5(b) on page 9 and 5(c) on page 9 and  
23 basically, Mr. Chairman, it provided that parties  
24 receiving witness statements from the OFIA and the OLMA  
25 would have 40 days from the date of service of the



1 witness statements to submit interrogatories, unless  
2 more than one witness package was delivered at once, in  
3 which case there would be an additional 10 days.

4 The logistical problem that I am going to  
5 put before you doesn't relate to multiple deliveries,  
6 so we can leave that part of it aside.

7 The second provision was that once then  
8 interrogatories had been delivered within that 40-day  
9 period, the OFIA/OLMA had 15 days - and this is the  
10 operative language - from the date upon which it  
11 received the written interrogatories to respond to  
12 them.

13 And then similar provisions, Mr.  
14 Chairman, were set out with respect to all other  
15 parties, the only thing being left out was the date  
16 when they had to initially deliver their evidence  
17 packages.

18 And you will recall perhaps, sir, that at  
19 the time the procedural order was settled there were  
20 various submissions made as to how logistically it  
21 might best work, and it's in anticipation of a  
22 logistical problem that I raise the matter now.

23 In practical terms the application of  
24 those two time deadlines could mean this: Evidence  
25 package - pick anyone - let's say No. 1 and 2 get

1 delivered, there are then 40 days within which all  
2 other parties have an opportunity to deliver their  
3 interrogatories. Some of those interrogatories could  
4 come in on day 10 after the evidence package was  
5 delivered, some could come in on day 15, some could  
6 come in on day 20, all within the 40-day time period  
7 that is running.

8 The OFIA and the OLMA and all other  
9 parties in the same position then have 15 days from day  
10 5, 15 days from day 10, 15 days from day 15 to reply.

11 THE CHAIRMAN: They may be related to  
12 each other?

13 MS. CRONK: That's problem No. 1, they  
14 may all be related to one another and we won't be able  
15 to anticipate that in advance until we have received  
16 them all.

17 But, secondly, and this is the real  
18 difficulty, Mr. Chairman, although the first is  
19 substantive, it means in effect that we have to keep  
20 committed on a daily basis representatives from over  
21 150 companies across the province whose responsibility  
22 it is to deal with this matter for conceivably,  
23 straight out, a 65-day period of time.

24 I can tell you, Mr. Chairman, that in our  
25 submission that is both unnecessary and wholly

1 impractical through no lack of commitment, it just  
2 doesn't work.

3           So our suggestion to resolve it - and  
4 this is a suggestion at this time, if this doesn't work  
5 we will come back to you again - is this: We will, of  
6 course, ensure that all responses to all  
7 interrogatories are received by every party who  
8 delivers interrogatories before the evidence on any  
9 particular package begins, but we suggest that we  
10 should have 15 days not from the date of submission of  
11 the interrogatories to respond, but rather 15 days  
12 from--

13           THE CHAIRMAN: From the expiry?

14           MS. CRONK: --the expiry of the 40th day,  
15 that's right. So that we would be in a position to  
16 respond to all interrogatories within that 15-day  
17 period before the evidence is given, but we could do  
18 it, hopefully if not all at once, at least within a  
19 concentrated time period.

20           Now, if the Board is concerned about that  
21 suggestion, I can expand upon the practicalities that  
22 have led us to suggest it, but the basic reality...

23           THE CHAIRMAN: Sorry, go ahead.

24           MS. CRONK: I'm sorry. I'm just saying I  
25 can expand upon the practical difficulties that lead to

1 the suggestion unless I'm hoping perhaps the Board --

2 THE CHAIRMAN: I think the practical  
3 difficulties you have outlined are probably  
4 self-evident.

5 MS. CRONK: Thank you, sir.

6 THE CHAIRMAN: But what problem arises by  
7 the interrogatories not being answered say until the  
8 65th day?

9 MS. CRONK: The only time that would  
10 arise, sir, would be if the parties who receive the  
11 evidence packages choose to deliver their  
12 interrogatories--

13 THE CHAIRMAN: On the 40th day.

14 MS. CRONK: --on the 40th day.

15 MS. MURPHY: 40th, 41st, 42nd.

16 THE CHAIRMAN: And Ms. Murphy says with  
17 the voice of experience that some of course have been  
18 delivered late.

19 You recall the distinction perhaps that  
20 was drawn under the Board's order was that the  
21 Ministry, as distinct from all other parties, when they  
22 responded -- when they delivered their evidence  
23 packages would indicate what a reasonable time period  
24 was for responding -- for receiving and responding to  
25 interrogatories.



1                   You are quite right that we are one to  
2                   wait until 4:30 on the 40th day or to the 41st or  
3                   later, then we can come tight in terms of the deadline.  
4                   On the other hand, depending on when the evidence  
5                   packages are delivered, there is going to be time in  
6                   addition to 65 days in any event.

7                   THE CHAIRMAN:   What -- that is part of  
8                   what I was alluding to.   I was trying to jump one step  
9                   ahead and think ahead to what the problems are in terms  
10                  of presentation of the panel's evidence, scoping of  
11                  that panel, et cetera, upon which the interrogatories  
12                  should be before the parties so that we can deal with  
13                  that whole situation in terms of scoping the evidence  
14                  for that kind of panel and the date upon which the  
15                  panel gets in the box for their oral presentations.

16                  And what I'm saying is:   What kind of  
17                  time -- supposing that you do deliver the  
18                  interrogatories on the 15th day after the 40th day, in  
19                  other words the 65th day - I haven't got the rest of  
20                  the order in front of me - how much time does that  
21                  leave before the panel would be called and before we  
22                  would get into scoping?

23                  Because I think when we made that order  
24                  we weren't really into the scoping procedure at that  
25                  point in time either?

1 MS. CRONK: That's correct, Mr. Chairman.  
2 The safeguard, if I can put it that way, in terms of  
3 their being sufficient time is that the Board's order  
4 currently provides that all witness statements from our  
5 clients must be delivered prior to the completion of  
6 the MNR's case, with the first statement being  
7 delivered at least 60 days prior to the completion of  
8 the MNR's case.

9 That would mean then that the 40-day  
10 period of time will begin to run, let's take the first  
11 statement, the first statement will be delivered at  
12 least 60 days prior to the completion of the MNR's  
13 case, subject to satellites hearings or whatever, so  
14 that the 40-day period will clearly run within the 60.

15 The problem doesn't arise with respect to  
16 later evidence witness statements because they will all  
17 be delivered before the end of the MNR's case.

18 THE CHAIRMAN: That's right.

19 MS. CRONK: So the only - as I can now  
20 foresee it - the only practical possibility of a  
21 difficulty is at the very beginning of those deliveries  
22 and obviously we will try to get the statements  
23 delivered to all parties in time to ensure that that  
24 doesn't happen.

25 THE CHAIRMAN: Well, can the first

1 statement, the first witness statement for the first  
2 panel of your case be delivered prior to 60 days from  
3 the end of the Ministry's case?

4 MS. CRONK: I do not, as I stand here,  
5 know the answer to that, Mr. Chairman. I can say that  
6 if it is delivered 60 days in advance of the end of the  
7 case, there is going to be a sufficient run of time to  
8 permit both full responses to interrogatories and  
9 scoping session to be held under your current order.

10 THE CHAIRMAN: Right.

11 MS. CRONK: Clearly if we can we will,  
12 but I don't have the answer to that at the moment.

13 THE CHAIRMAN: Okay. And I guess the  
14 downside is, if that is not possible, then we just have  
15 to adjust the procedures essentially with respect to  
16 the first panel?

17 MS. CRONK: That's correct, sir. That's  
18 correct, sir.

19 THE CHAIRMAN: All right. Well, it  
20 doesn't seem like a major thing. Let us think about it  
21 night.

22 MS. CRONK: Thank you.

23 THE CHAIRMAN: And I'm sure we can come  
24 up with something that is acceptable.

25 MS. CRONK: It may be as well that other

1 parties whose attention is not yet focussed on this  
2 will share my submissions to you when they begin to  
3 focus on how they are going to deal with these time  
4 periods.

5 THE CHAIRMAN: And they may have the same  
6 problems with theirs?

7 MS. CRONK: Quite right, sir. It's  
8 complicated, of course, by the multiple party aspect  
9 for whom we act.

10 THE CHAIRMAN: Okay. Well, I'm sure we  
11 can adjust the order sufficiently to take away the  
12 problem--

13 MS. CRONK: Thank you.

14 THE CHAIRMAN: -- in some fashion.

15 MS. CRONK: Thank you, Mr. Chairman.

16 The second procedural issue, I'm not sure  
17 that it is in fact a procedural issue but I  
18 characterize it that way, relates to the potential  
19 attendance of Dean Baskerville to give evidence.

20 And the issue is this, Mr. Chairman, and  
21 it's a matter upon which I'm really requesting that the  
22 Board consider setting aside time next week to receive  
23 either submissions on the matter or some advice from  
24 counsel as to their intentions.

25 You will recall, Mr. Chairman, that after



1 the Board's decision that Dean Baskerville would be  
2 asked to attend in the role as described already by the  
3 Board to testify, that a meeting was held by legal  
4 counsel and other representatives with Mr. Turkstra to  
5 discuss various procedural matters.

6 During the course of that meeting, Mr.  
7 Hanna on behalf of the Anglers & Hunters organization  
8 indicated that it had been his client's intention, at  
9 least they were considering calling Dean Baskerville as  
10 their own witness before the Board reached the decision  
11 that it did reach. He further indicated at that  
12 meeting that it might be his client's intention in any  
13 event and in due course to call Dean Baskerville.

14 There were a number of counsel who then  
15 raised with Mr. Turkstra at that meeting the merits of  
16 getting that issue straightened out right away. Mr.  
17 Turkstra indicated that dealing with that issue did  
18 not, at that time, fall within his instructions and he  
19 suggested therefore that the issue be brought to the  
20 attention of the Board if parties were concerned about  
21 it.

22 So I bring it up, sir, and I would like  
23 to be clear as to why we bring it up at this point in  
24 time. It is not because our clients have a position on  
25 the matter at the moment, but we believe the issue of

1 whether any other party intends to call Dean  
2 Baskerville as a witness should be settled before the  
3 the Board makes a final decision as to whether it  
4 wishes to do so.

5 THE CHAIRMAN: Right. And who -- I guess  
6 it involves the question of who owns the witness,  
7 particularly when it's the Board's witness.

8 MS. CRONK: On the general ownership  
9 question, that was clear.

10 THE CHAIRMAN: Complicated by the fact  
11 that --

12 MS. CRONK: That's right. It maybe, Mr.  
13 Chairman, that if any party informs the Board that they  
14 intend or wish to call Dean Baskerville, that the Board  
15 may consider it appropriate to reconsider their own  
16 intentions with respect to the matter or,  
17 alternatively, to hear submissions from counsel as to  
18 when Dean Baskerville should be called by the Board.

19 And given that the July break is coming  
20 up and there are materials being prepared for  
21 forwarding to Dean Baskerville, we are reluctant to  
22 have this matter put over until the week of August 8th.

23 But recognizing also that Mr. Hanna is  
24 not here, and I confess it was not until Friday of last  
25 week at the airport that I learned that he wouldn't be

1 here again until the summer break.

2 So I raise it now so that some notice  
3 perhaps can be provided to him to inform the Board of  
4 his intentions.

5 THE CHAIRMAN: Right. I think in view of  
6 the question you have raised, and it's one that is in a  
7 very peripheral way crossed the Board's mind,  
8 especially as to how they would react if somebody  
9 requested Dean Baskerville to be subpoenaed by them,  
10 that perhaps it might be advantageous if we contacted  
11 Mr. Turkstra and perhaps Mr. Turkstra could be present  
12 for the argument to both advise the Board, as Board's  
13 counsel on this matter itself, and to also properly be  
14 part of these discussions.

15 MS. CRONK: Clearly, Mr. Chairman...

16 THE CHAIRMAN: Since he will be the one  
17 who will be in effect--

18 MS. CRONK: Representing.

19 THE CHAIRMAN: --acting and representing  
20 both the Board and Dean Baskerville. And if it turns  
21 out that Dean Baskerville is here in a dual role, not  
22 only for the Board but on behalf of some other party, I  
23 think it would be important that he be involved in  
24 these discussion.

25 MS. CRONK: I suppose, Mr. Chairman,



1 speaking for our clients, what we are asking at the  
2 moment is not that there be time set aside for  
3 submissions on this issue, but rather that the Board  
4 request all parties to indicate to the Board within the  
5 next several days whether it is their intention or  
6 whether they are actively considering calling Dean  
7 Baskerville because it is only if the answer is yes --

8 THE CHAIRMAN: Well, I take it you have  
9 only had this intention expressed by OFAH?

10 MR. CRONK: That was on June the 2nd. It  
11 was not a formal inquiry made by the Board. I do not  
12 know if that thinking has changed and, in any event,  
13 the Board has not been formally informed as to their  
14 intention.

15 So if the answer is no, then there is no  
16 need for further submissions on the matter; if the  
17 answer is yes we are, or we would like to reserve our  
18 right to do that...

19 THE CHAIRMAN: Yes. That is what I think  
20 the Board is more afraid of. I mean, what if the  
21 parties don't express an intention at this time but  
22 change their mind subsequently, should not this issue--

23 MS. CRONK: Well, I think the matter has  
24 to be dealt with, Mr. Chairman.

25 THE CHAIRMAN: --be settled one way or



1 the other?

2 MS. CRONK: I believe that's correct, Mr.  
3 Chairman. And we are just concerned --

4 THE CHAIRMAN: And should they be  
5 prejudiced at this stage to having to state  
6 categorically yes or no. I mean, it may be that based  
7 on further evidence they may change their position.

8 MS. CRONK: I'm not suggesting that any  
9 party should be put to an election at this time, I'm  
10 just requesting that the Board canvas whether any  
11 decision has already been made.

12 I do not know the answer to that. I know  
13 what the suggestion was on June the 2nd. But you are  
14 quite right, it's not binding, so...

15 THE CHAIRMAN: Well, I think we can  
16 certainly state at this time that we would like an  
17 indication formally from any party who now wishes to  
18 consider calling Dean Baskerville as their witness so  
19 we can certainly -- and I will have Mr. Mander write to  
20 the parties--

21 MS. CRONK: Thank you.

22 THE CHAIRMAN: --with that, but how are  
23 you suggesting we deal with this procedurally?

24 MS. CRONK: I'm suggesting, Mr. Chairman,  
25 that all parties be requested to inform the Board by

1 mid next week, while you are still here, as to what  
2 their present intention is and that the matter then be  
3 dealt with by way of submissions before we adjourn for  
4 the July break, so that it will be dealt with next  
5 week.

6 THE CHAIRMAN: Are you suggesting that  
7 the submissions would be made next week by all the  
8 parties?

9 MS. CRONK: I was, Mr. Chairman. My  
10 concern is this: That if it is not dealt with before  
11 the summer break and the Board doesn't reconvene until  
12 the second week in August -- well, it is still open  
13 obviously to the Board to then make any decision it  
14 wishes.

15 The arrangements that were at least  
16 tentatively put in place with Mr. Turkstra contemplated  
17 that Dean Baskerville would be provided over the summer  
18 with materials to read with a view to preparing to give  
19 evidence on behalf of the Board at the end of  
20 September, the beginning of October, with a witness  
21 statement to follow by the end of August.

22 THE CHAIRMAN: Oh, I see.

23 MS. CRONK: All of which might be very  
24 premature if the Board were to decide, for whatever  
25 reason, that they wish to hear from Dean Baskerville

1 much later, or not at all, or in a different way.

2 That's why I am raising the matter now.

3 I recognize there is a time issue to it.

4 THE CHAIRMAN: Would there be a  
5 possibility of dealing with that question in Toronto  
6 the following week?

7 I just raise that, firstly because of the  
8 time element involved and, secondly because I think it  
9 is the Board's view that if we do get into that, that  
10 Mr. Turkstra should be present.

11 MR. FREIDIN: Are you talking about the  
12 first week in July; is that what you are contemplating?

13 THE CHAIRMAN: Well, we were until Mr.  
14 Martel informed us that he won't be around.

15 MR. FREIDIN: Good for you, Mr. Martel.

16 THE CHAIRMAN: We are no longer  
17 contemplating that.

18 ---Discussion off the record

19 THE CHAIRMAN: Well, why don't we do  
20 this: Why don't we have Mr. Mander phone the various  
21 parties involved - although that won't cover parties  
22 that are outside of the regulars at the hearing - to  
23 find out if there is an indication. If there is an  
24 indication from one party, then I suppose we are into  
25 the issue fairly quickly.

1                   As far as when we can deal with it, Ms.  
2           Cronk, I think I want to have a word with Mr. Turkstra  
3           as well to see when he might be available.

4                   How do the other counsel present feel  
5           about addressing this matter in terms of making  
6           submissions next week some time? I know it doesn't  
7           leave much time, but I appreciate Ms. Cronk's concerns  
8           over the timing of this whole matter, particularly the  
9           delivery of a witness statement by Dean Baskerville.

10                   MS. SEABORN: Well, Mr. Chairman, I have  
11           to obtain some instructions on this issue.

12                   My preliminary reaction is that there may  
13           be some parties who would make representations to the  
14           Board that the Board could not rule on this issue in  
15           any event because they may make whatever argument that  
16           even after Dean Baskerville delivers his witness  
17           statement and gives his evidence, perhaps they may  
18           make - I am not saying I am going to make that  
19           argument - another party may argue at that point it is  
20           still open to them to call Dean Baskerville at a later  
21           stage in the hearing.

22                   So my initial reaction is, I am a little  
23           bit concerned about this. I know Mr. Hanna is away  
24           this week out of the province, and I don't know if Mr.  
25           Quinney is available. I have a feeling it is going to



1 be quite short notice though for them to come up here.

2 MS. CRONK: The other practical solution  
3 in that, Mr. Chairman, that occurs to me, if I might,  
4 is that if the Board can receive a response from all  
5 parties next week as to their present intentions, the  
6 matter could be argued the first week of August when we  
7 reconvene.

8 But in those circumstances, I suppose  
9 what I am really suggesting is the Board might wish to  
10 revisit certain of the instructions you've given your  
11 own counsel as to the timing of delivery of that  
12 witness statement and as to when those materials should  
13 be provided to Dean Baskerville.

14 I'm simply saying that perhaps that  
15 should be deferred, if you are going to defer for very  
16 good reasons, then hearing submissions on this until  
17 the first week of August, otherwise the course of  
18 action has been put in place.

19 THE CHAIRMAN: Right. Okay, let us  
20 contemplate that overnight as well.

21 And it looks like, in all probability  
22 though, next week would be premature to try and put  
23 forward submissions to the Board on the question  
24 because I doubt very much, in fairness, we would have  
25 the responses from the parties, and I would think

1 parties receiving full-time correspondence who are not  
2 present on a daily basis should also have the  
3 opportunity to respond to that issue as well, if they  
4 so choose.

5 So let us give it some thought overnight  
6 and perhaps we will come back tomorrow with some more  
7 definitive instructions regarding that particular  
8 issue.

9 MS. CRONK: Thank you, Mr. Chairman.

10 THE CHAIRMAN: Okay. As far as tomorrow  
11 goes, how long do you expect to be? Do you have any  
12 idea, Mr. Freidin?

13 MR. FREIDIN: (indicating two)

14 THE CHAIRMAN: Two hours, plus an hour  
15 for Ms. Seaborn to complete.

16 MS. SEABORN: An hour at the most, Mr.  
17 Chairman.

18 THE CHAIRMAN: Thank you.

19 Ms. Murphy, do you have anything further?

20 MS. MURPHY: We are in this together.

21 THE CHAIRMAN: So at the most we have  
22 three hours.

23 I think under the circumstances, we can  
24 commence at nine o'clock tomorrow then.

25 Thank you.

1 ---Whereupon the hearing adjourned at 5:20 p.m., to be  
2 reconvened on Wednesday, June 21st, 1989, commencing  
3 at 9:00 a.m.  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25









